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ABSTRACT

This document describes the curriculum model developed by the Faculty of Environmental Studies (FES). The FES Model is based on connected concepts of "environment" and "study." In this approach "environmental" not only is the focus of what is to be studied but also describes the experiential way in which the study is pursued. The document focuses on individual pedagogical "Plans of Study" which are intended to relate to the overall FES Curriculum Model. Included are a collection of essays which deal with such topics as: (1) a guide for the first plan of study; (2) a pictorial primer of the FES Model; (3) a notational representation of the FES Curriculum Model; (4) the interpretation of substantive concerns; (5) implications of the FES program's "quadrants"; and (6) the use of the logistical framework. Also included is a selected bibliography on approaches to environmental studies. (TW)

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FESKIT

ESSAYS INTO ENVIRONMENTAL STUDIES

Being Interpretations and Amplifications

of the

FES CURRICULUM MODEL

by Gerald A. P. Carrothers

with Stephen Kline and John Livingston

assisted by

Leesa Fawcett, Vinod Goel and Wesley Stevens

and a cast of thousands

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To Whom It May Concern

gapc: July 1968 & July 1987

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THEMATIC INDEX

BEING A SKETCH OF THE MAIN IDEAS OF FESKIT

(Caution: things are seldom what they theme)

PRE AMBLE:
LITTLE STEPS FOR LITTLE FEET

The FES Curriculum Model originated in 1968 with the establishment of the Faculty of Environmental Studies. The model is continually evolving and any formal record, including this one, is inevitably incomplete and out of date. The model is for study in FES and is not presented as a universal model of environmental studies. pp 1-3

The FES approach is based on connected concepts of 'environment' and 'study'. **Environmental**[1] not only defines that which is to be studied but also indicates the way in which study may be pursued. pp 3-4

Individual pedagogical models (Plans of Study) relate to the common framework of the FES Curriculum Model. The challenge is to resolve the tension between personal views of learning (inner-directed) and social views of education (outer-directed). pp 4-5

Self-directed learning is fundamental in the process. Central to self-directed learning are appreciating the nature and extent both of one's knowledge and of one's ignorance, and understanding one's own particular style of learning. **Learning** is the interplay of experience, instruction and reflection and is intrinsically self-directed. **Study** is purposive and intentional activity for learning. Study may be self-directed, in principle, but in an academic institution study will be mutually directed. In FES, the nature of the mutual direction is negotiated between the student and the faculty and recorded in the Plan of Study. pp 5-8

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[1]In this index, underlined **bold face type** emphasizes key words that introduce concepts having particular import for FES. The sharing of meaning comes from language; study in FES involves, in part, learning a vocabulary and formulating a language specific to the individual program.

FORAY ONE:
THE FIRST PLAN OF STUDY

The student engages in a **program of study** as articulated in the individual **Plan of Study**. The Plan of Study is a 'learning contract' between the student and the Faculty. The 'first' Plan of Study is a very different plan from the 'last' Plan of Study and the last plan should not be sought in the first plan. The first Plan of Study is to initiate purposive learning and to open up the program of study. The last Plan of Study is to consolidate the learning and to allow the student to complete the program. The Plan of Study may be revised as often as needed to guide the student through to the end of the program. In developing the Plan of Study, the student does not need to interact with every way of understanding and using the Model. pp 1-3

The starting point for the Plan of Study is what the student knows and how the student thinks. The plan document may take on a variety of forms to suit individual needs and tastes. Whatever the form, the following aspects need to be dealt with: personal background and purpose in study; field of study; program perspective; program approach; learning activities. pp 4-7

In **General Examinations**, the student and faculty advisors together examine the Plan of Study and its various revisions, to confirm relevance and validity. The examinations serve both the learning needs of the student and the institutional responsibility of the faculty to monitor student progress. pp 7-8

FORAY TWO:
A PICTORIAL PRIMER

We start with the premises that environmental studies are undefined and infinite in scope, and that the conventional disciplines/professions do not in or by themselves provide the basis for defining either the content or the approach for environmental studies. The FES Model for the '**disciplining**' of environmental studies is represented by a three-dimensional framework consisting of six axes:

- i Substantive Concerns -- 'Field',
- ii Social Context -- 'Externity',
- iii Personal Orientation -- 'Self',
- iv Area of Concentration -- 'Kernel',
- v Learning Resources -- 'Implements',
- vi Learning Strategy -- 'Tactics'. p 1

The first three axes represent basic underlying influences that determine and explain the essential nature of the individual program of study. pp 2-3

The overlay of two of these basic axes -- Axes ii and iii -- reveals **Program Quadrants** that represent context and perspective for study:

A Praxis in Intervention,
B Praxis in Observation,
C Theory in Intervention,
D Theory in Observation. pp 4-7

Each of the three basic axes has a counterpart element -- Axis iv, v and vi, respectively -- that together constitute a **logistical framework**. In combination, the Program Quadrant and the logistical framework -- Axes ii through vi -- constitute the **methodological framework** which enables the student to formulate, describe, direct and carry out the individualized program. pp 8-9

The six axes together form an integrated curriculum framework for the development of individual pedagogical models -- that is, Plans of Study. pp 10-14

FORAY THREE: A NOTATIONAL REPRESENTATION

We start with the same premises as for Foray Two, namely: environmental studies are undefined and infinite in scope; and the conventional disciplines/professions do not in or by themselves provide the basis for defining either the content or the approach for environmental studies. The Model is then seen to consist of two basic components: defining the subject matter for study (substantive concerns); and deciding what to do with the subject matter (methodological framework). pp 1-2

The **methodological framework** is shown to consist of two aspects: the context and perspective for study (Program Quadrant); and the logistical superstructure for carrying out the study (the individual syllabus of study). pp 2-3

The **Program Quadrant** is derived from two fundamental factors: the perception of the social context in which the subject matter is approached; and the personal orientation of the student. pp 3-4

The **logistical framework** is expressed in three elements: the Area of Concentration and its components; the learning resources that are available to the student; and the learning objectives and strategy for the program. pp 4-5

The range of elements influencing the individual Plan of Study is shown to consist of:

i Field -- Substantive Concerns,
ii Externity -- Social Context,
iii Self -- Personal Orientation,

iv Kernel -- Area of Concentration,
v Implements -- Learning Resources,
vi Tactics -- Learning Strategy. p 6

Lastly, the factors of personal integration and faculty perception are incorporated, and the notational representation of the Model is recapitulated. pp 7-9

FORAY FOUR: SUBSTANTIVE CONCERNS

The **Substantive Concerns** of the student will, in part, determine the subject matter for study (Axis i of the Model). As subject matter, environments may be understood to be derived from two different **origins**: natural origin and anthropic origin -- leaving aside supernatural origin. pp 1-2

Environments may be understood to have two sorts of **form**: tangible form, originating from Nature or from Humankind; and symbolic form, originating from Humankind -- leaving aside spiritual form. p 2

From the overlay of source and form, several **kinds** of environment may be perceived: evolved environments; fabricated environments; personal environments; social environments. p 3

Within the different kinds of environment, **space** may be defined abstractly or concretely: personal space; social space; material space; technological space. p 4

Intrinsic and superimposed characteristics define the **essence** of environments. Tangible environments may be pristine or modified or adapted or artificial. Symbolic environments may be internal or behavioural or cultural or societal. p 5

Environments do not occur in isolation and thus may be perceived through various **interfaces**, in particular through relationships with humankind. pp 5-8

An undeveloped notion is that subject matter has an intrinsic form of **thought** as well as content; the environmental context of substantive concerns may in itself reveal the appropriate 'filter' for thinking. p 9

FORAY FIVE: PROGRAM PERSPECTIVE

The approach to study that is taken by the student will be determined by two factors: the external influences that act on the

approach -- **Social Context** -- and the internal origins of the approach -- **Personal Orientation**. In determining program perspective, Personal Orientation and Social Context do not function independently. The relationship is one of continuing interaction of Self and Externity, of inner-direction and outer-direction, of experience and instruction. pp 1-2

Program perspective is fundamentally distinguishable from the subject matter and activities of study. The overlay of Axis ii (Externity) and Axis iii (Self) reveals **Program Quadrants** that represent four dominant manifestations of program perspective:

A Praxis in Intervention/Intervention in Praxis,
B Praxis in Observation/Observation in Praxis,
C Theory in Intervention/Intervention in Theory,
D Theory in Observation/Observation in Theory. pp 2-3

Social Context (Axis ii) derives from two aspects: societal perceptions of the purpose, or value, of knowledge (both in general and in particular); and institutional settings for observing and intervening. pp 4-5

Through '**disciplinarity**' and '**professionalism**', society blesses those who are to be developers of knowledge and those who are to be appliers of knowledge. Disciplinarity is determined primarily by social convention; professionalism commonly has legislative legitimation. There are many manifestations of disciplinarity and professionalism. Beneath the superstructure of institutional arrangements and public rhetoric, the basic purpose of the professions is to intervene and the basic purpose of the disciplines is to explain (and thereby to intervene). pp 6-9

There may be significant differences between personal perceptions of Social Context and the 'reality' as defined by social convention. Program perspective, as influenced by Social Context, may change as the program proceeds, but the adoption of topical learning styles in relation to particular learning experiences should not be confused with the evolution of program perspective. p 9

Personal Orientation (Axis iii), derives from complex interactions of biological 'self' and social 'self' which result in metaphysical 'Self'. p 10

Four aspects contribute to the individual manifestation of Personal Orientation:

Prime personal **motivation** or purpose in engaging in study. p 11

The main personal means used to **focus** the approach to study. p 12

The dominant personal preferred **style of thinking**. p 13

The normally adopted personal manner or **mode of study**. p 14

In combination, those aspects determine the overall personal perspective that the student brings to the program of study. The outcome is four different types of 'learners', represented in the Program Quadrants as they reflect Personal Orientation. pp 15-19

The **Program Quadrants** represent a general characterization of the different perspectives for study -- the combination of Social Context and Personal Orientation that conditions the program of study for the individual student. Taken together, the four Quadrants represent the overall perspective of the Faculty. The particular Quadrant represents the dominant perspective taken by the student for the purpose of the program, as reflected in the individual Plan of Study. To be 'in' a Quadrant means to bring to the program of study a frame of mind determined by Social Context and Personal Orientation. pp 20-22

FORAY SIX: THE LOGISTICAL FRAMEWORK

The FES Curriculum Model has three purposes: it constitutes the pedagogical underpinnings for individual programs of study; it provides the academic context for the functioning of the Faculty; it presents a basis for connecting the Faculty with the 'other' real world. Within the Model, the **Logistical Framework** is expressed in three elements (axes): Area of Concentration (Kernel), Learning Resources (Implements), Learning Strategy (Tactics). The three axes of the Logistical Framework are inherent in and emanate out of the three axes of underlying influences (personal Field of concerns, Social Context for study, Personal Orientation). pp 1-3

The **Area of Concentration** (Kernel) is the subject matter within the personal Field of concerns that is to be explored and 'mastered' for the MES degree. There are three ingredients in the definition of the Area of Concentration: delineation of the extent and coverage and depth of penetration of the subject matter; analysis of the content, and identification of the constituent elements, or **Components**, of the Area of Concentration; depiction of the Area of Concentration as a consistent and integrated whole. pp 4-7

Learning Resources (Implements) seemingly are unlimited in their opportunities for learning. In the Faculty, the settings and activities of purposive learning are institutionalized in **courses**. Everything that the student does for acknowledged academic credit is done in the context of a 'course'. p 8

In FES, courses consist of **group courses** where two or more students are associated with one or more faculty members, and **individual activity courses** where one student is associated with one or more faculty members. Group courses include: lecture courses, seminar courses and workshop courses. Individual activity courses

include: directed reading courses, individual directed study courses, field experience courses, independent work courses. pp 8-12

The assessment of the performance of students in courses is documented by a combination of symbolic **grades** of Pass (P) or Unsatisfactory (U) and confidential written **evaluations** by the course instructors, and may include self-evaluation and peer evaluation. p 12

In the nature of the FES curriculum approach, courses offered by the Faculty cannot, by themselves, fully satisfy the widespread interests of the students. Students are encouraged to seek out and engage in appropriate courses outside the Faculty, as integrated experiences in the individual degree program. pp 12-13

The advising process is an integral and significant element of the individual program of study. The student is assigned two faculty advisors -- a **Primary Advisor** and a **Secondary Advisor** -- selected in the light of the student's substantive interests and approach to the program, as reflected in the Plan of Study and in the nominations made by the student. The faculty advisors are responsible for providing continuing advice and guidance in relation both to the processes of the program and to the substantive concerns of the student. pp 13-14

General Examinations not only are settings for the formal appraisal of the Plan of Study and of the qualifications of the student to pursue it, but also are significant learning opportunities whereby the student and faculty members can together explore the implications of the Plan of Study. pp 14-15

Graduate Assistantships, Teaching Assistantships, employment situations and voluntary activities all represent learning opportunities, and students are encouraged to appraise such settings for their potential as integral elements of the individual degree programs. pp 15-16

In developing the **Learning Strategy** (Tactics) for the individual program of study, there are many ways of using the FES Curriculum Model. It is not expected that every student will approach the Model in the same way and it is not necessary that each student interact with every way of understanding and using the Model. Tactics for the individual program are developed within three **phases** or **levels** of the program, labeled as MES I, MES II, MES III. MES I is for determining the essential approach for the program, setting objectives, exploring resources, and establishing the initial Plan of Study. MES II is for obtaining essential substantive command of the Area of Concentration. MES III is for the integration and synthesis of the Area of Concentration that represents 'mastery' in Environmental Studies. pp 17-22

The record-keeping system for accounting for the course activities of the individual program is based on the interpretation of

courses by the mechanism of **course-units**, whereby full-time study in a given term is represented by five course-units. Thus, if a single course occupies the full time of the student throughout the term, that course is represented by five course-units; five separate courses are represented by one course-unit each; and between these extremes courses will carry varying numbers of course-units, depending on the nature of the activities of the course and on the individual Plan of Study. In the 'normal' case, the MES degree calls for forty course-units (equivalent to eight terms of full-time study, or two and two-thirds calendar years). But the actual length of the program is determined in the individual case by the Plan of Study. When the individual Plan of Study calls for less than forty course-units, the difference is accomodated by means of **Residual Credit**. pp 23-24

The individual program of study will evolve as it progresses, adapting to new knowledge and insights and changing perspectives. As changes occur, the student will want to revise the Plan of Study. Each revised Plan of Study will have its own integrity, evolving out of that of the previous iteration. The Plan of Study may be revised as often as appropriate for the individual program. It is obligatory that the Plan of Study be revised at least once, for advancement from MES II to MES III, when the detailed requirements for the final phase of the program must be set forth. pp 25-26

At the end of the program, the student must demonstrate 'mastery' of the Area of Concentration in an oral **Final Examination**. In support of this process, the student will want to view the program of study in restrospect and may wish to prepare a summary statement of the way that 'mastery' has been accomplished. pp 27-28

FORAY SEVEN: SELECTED BIBLIOGRAPHY

References are arranged under the following headings:

Concepts

1. Concepts of Environment. pp 2-3
2. Concepts of Knowledge and Knowing. pp 4-5
3. Concepts of Disciplinarity. pp 6-7
4. Concepts of Professionalism. pp 8-9

Approaches

5. Philosophy and Method of Science. pp 10-11
6. Insights out of Humanism. pp 12-13
7. Expressions in Creativity. pp 14-15
8. Social and Behavioural Modes. pp 16-17
9. Some Aspects in Application. pp 18-20

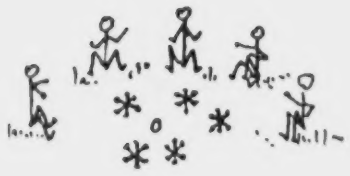
Skills

10. Thinking and Learning. p 21
11. Reading and Writing. p 22
12. Presenting and Listening. p 23
13. Ordering and Coping. p 24

* * *

A NOTE TO THE READER

There are many ways of exploring and using the FES Curriculum Model. It is unlikely that the particular logic that underlies the sequence of these essays, as presented here, will be the logic of all users -- therefore, it is not intended that readers will necessarily start with the PreAmble and then work their ways through the Forays in sequence. Nor is it likely that every reader will wish to engage with all Forays. These essays are offered with the anticipation that the user will probe into any one or more of the Forays, in any sequence, as interest and the occasion might suggest.



York University
Faculty of Environmental Studies

ESSAYS INTO ENVIRONMENTAL STUDIES

Being Interpretations and Amplifications
of the

FES CURRICULUM MODEL

FESKIT

PRE AMBLE

"Who moves not forward goes backward"

1987-4

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PRE AMBLE

Two steps forward and one step back is still progress

The York University 'model' of environmental studies was first set forth in 1969[1] by the eight persons who then comprised the faculty in Environmental Studies -- Dan Cappon, G. Carrothers, Michel Chevalier, Eli Comay, Brian Dixon, David Morley, Alex Murray, James Stovel. Although the current interpretations are implicit in the original formulation, the statement of the model has gradually evolved in response to the experience of successive generations of graduate students and their faculty advisors, in using the model to assist in developing and implementing individual Plans of Study for the MES program.

Over the years, refinements in the description of the model, as presented in the Faculty Calendar, have been contributed by various faculty members, notably by Stephen Kline. The model has been an underlying and persistent element in the various transformations of the basic course for incoming students in 'Term One', now ES 5101 Approaches to Environmental Studies (the closest thing to a universally 'required' course for students in the MES program). This current formulation of the model is indebted to the students of ES 6102 Transitions in Environmental Studies and ES 7102 Synthesis in Environmental Studies who, in the nine iterations of the courses from January 1984 to December 1986, participated willy-nilly in a variety of explorations of different aspects of the model.

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[1]The Faculty of Environmental Studies was established by the Senate of York University in April 1968, and the first faculty appointment was made in July 1968. Sixteen graduate students first enrolled in the environmental studies program in September 1969 and MES degrees were first conferred in June 1972. As of Fall Convocation 1987, a total of 944 MES degrees have been awarded.

More recently, the interpretations reflected in this presentation have been deeply influenced by the work of a project directed toward developing an interactive computerized formulation of the model initiated in the Winter term of 1986 by Stephen Kline, joined by John Livingston and G. Carrothers and, as the project has progressed, by other students: Leesa Fawcett, Vinod Goel, Wesley Stevens. A rewarding, often entertaining, frequently diverting, and always illuminating by-product of the project (in truth, central to it) is the continuing search to understand one another's meanings in what we say and convey,[2] and to find appropriate ways to put thoughts into words and symbols for others to share.

The sharing of meaning comes from language and, over the years, FES has gradually accumulated its own vocabulary. We tend to give particular meaning to common words and to attribute common meaning to particular words. Of course, the advantage of easing communication by sharing a 'jargon' is offset by the difficulties for understanding faced by the uninitiated. Learning in FES involves, in part, learning a language. Moreover, in developing individualized programs, students have to formulate language that is specific to their own study.

In offering, in this document, some of the salient consequences of recent explorations of the model, it needs to be said that this is a record at a

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[2]Among eclectic illustrations we offer the following samples, the first from an oral tradition originating in Victorian England:

> "Go to father," she said, when I asked her to wed,
> for she knew that I knew that her father was dead
> and she knew that I knew what a life he had led,
> so she knew that I knew what she meant when she said,
> "Go to father!"

Reflecting a later stage of the life-cycle:

> The model husband -- a small imitation of the real thing.

In a more contemporary idiom:

> Waddya mean, "Waddya mean, 'waddya mean?'?"?

particular moment of a continually changing and evolving model. The record is necessarily incomplete and inevitably out of date the moment it is set down — this is truly a look at 'work in progress'.

It must also be said that the prime purpose of the FES Curriculum Model is to assist in the development of the individual program of study for the degree of Master in Environmental Studies at York University -- it is not presented as a universal model of environmental studies. The 'Model' is of a particular approach to graduate work in environmental studies -- whatever wider value it may prove to have.

ENVIRONMENTAL STUDY

The FES approach to curriculum is based on two essential concepts:

- o environment - "the aggregate of surrounding things, conditions, or influences;"
- o study - "application of the mind to the acquisition of knowledge, as by reading, investigation, or reflection." [Random House]

The 'field' of environmental studies is thus taken to be infinite and undefined -- the challenge is to identify appropriate aspects for exploration and to define appropriate modes for study. It is also taken that, for FES, none of the existing disciplines and professions in and by itself provides an appropriate unique basis for defining either the subject matter to be studied or the manner for studying it -- all are considered to have relevance. Thus, for each student there needs to be an individual Plan of Study that defines the curriculum for that student.

The word 'environment' may be understood not only as a noun but also in its adjectival form. As a noun, it is defined above. In the label 'Environmental Studies', it becomes adjectival, to be understood as modifying both that which is to be studied and also the manner in which it is to be studied. It is interesting to speculate on what it might mean to study

environmentally. For FES (collectively and individually) the meanings seem to revolve on the following notions:

- o contextual thinking,
- o evolutionary apprehension and comprehension,
- o interdisciplinarity and transdisciplinarity (or, at least a-disciplinarity -- or, better still, inner-disciplinarity),
- o interrelatedness of all things,
- o connectivity of synthesis and analysis,
- o continuity and integration of praxis and theory,
- o simultaneity of ends and means.

One key to the FES Curriculum Model is 'environmental study'; another is 'self-directed learning'.

ABOUT LEARNING

The essential principle of the FES curriculum approach is that of individual pedagogical[3] models based on the common framework of the FES Curriculum Model. This reflects a belief that, although we must operate in the world the way it is -- with all of its social and institutional structures and constraints -- there is room in academia to respond to individual and personal processes of learning. The Model is an effort to resolve the tension between social and personal views of 'education'.

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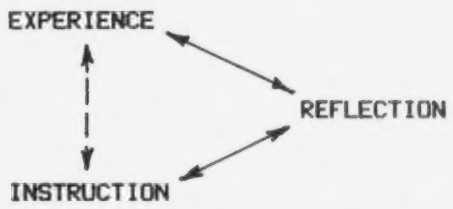
[3]Objections have been raised to the use of the word 'pedagogy' in reference to the teaching of adults -- probably because the word derives in part from the root 'boy' (although contemporary dictionaries do not seem to make the distinction; for example, "the principles, practice or profession of teaching" [Collins] and "the science or art of teaching" [Gage]). To refer to the teaching of adults, some recent writings employ the term 'andragogy', deriving in part from the root 'man'. For our purposes both words are objectionable: first, both words may be perceived to have sexist connotations; second, as it is not clear when (or if) the child becomes the adult, so the distinction between pedagogy and andragogy becomes problematic (except, perhaps, for the very young and the very old). We therefore seek a term that refers to the range of human learning processes embracing both children and adults, whatever distinctions may be drawn within the general concept. One candidate is 'personagogy', deriving in part from the root 'mask' -- other nominations are welcome.

The social view may be characterized at the extreme by three 'ARE's of education (founded in rote) -- schooling, indoctrination, training. The personal view may be characterized at the extreme by three 'SEE's of education (founded in comprehension) -- learning, understanding, knowing. But the reality is that 'education' is an amalgam of both, not only reflecting social imperatives but also responding to divergent personal needs (on the one hand, for freedom, self-determination and flexibility and, on the other hand, for guidance, direction and instruction). Difficulties arise when perceptions of one view are passed off as being those of the other. Behind the rhetoric of 'self-directed' learning may often be found rules of instruction as rigid and as institutionalized as those of the 'schooling' that they were intended to resist. Nevertheless, the concept and role of 'self' is fundamental for education.

In the social view of education, learning is outer-directed. In the personal view of education, learning is inner-directed. But there can be no real 'learning' that is not self-directed. Information cannot be transformed into understanding and knowledge until it is internalized -- and until it is internalized it is not 'learned' in any fundamental sense. Information can only be internalized by the self. No amount of external force can do the internalization and transformation (although external forces can and do influence personal motivation for learning and the way that learning proceeds). In this sense, then, learning is by definition self-directed.

Instruction and experience are two essential elements in education. In instruction, the learning process is outer-directed and 'thinking' becomes the primary generator of learning. In experience, the learning process is inner-directed and 'doing' becomes the primary generator of learning. In both cases, the mediating element of 'reflection' is necessary for learning to occur. Reflection is inherently self-directed. In this sense, too, learning is by definition self-directed.



It is useful to distinguish between self-directed learning and self-directed study. While learning is inherently self-directed, the exercise of study may indeed be largely determined by social arrangements. Very few study programs are purely self-directed, and the MES program is certainly not one of them -- precluded by the setting in a university, if nothing else. But it *is* hoped that, within the individual program, *learning* will be self-motivated and self-directed.[4]

ABOUT LEARNERS

Central to self-directed learning is appreciating both the nature and extent of one's knowledge and the nature and extent of one's ignorance. Each of us is unique in our particular combination of knowledge and ignorance. By design and intent, the MES program enrolls students who differ substantially in age, background, experience, and anticipations. Thus the individual knowledge-to-ignorance ratio varies widely, as does the way that individual knowledge is used. It is therefore expected that incoming students will be in different states or conditions of awareness of the nature and extent of their knowledge and of their ignorance.

It is not uncommon that we will know the nature and extent of our knowledge -- although we frequently underestimate or overestimate our knowledge in particular circumstances. It is less common that we will also know the nature and extent of our ignorance. It may happen that we do not appropriately understand either. One of the objectives of the FES curriculum

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[4]We observe, in passing, that 'training' tends to by-pass the element of reflection and therefore training is not a proper synonym for education -- to be conditioned is not the same as to understand.

approach is to help individual students understand both the extent of their knowledge and the extent of their ignorance as a necessary condition for putting successful individual Plans of Study into place."

"For several years, the following two excerpts have been given to students to provide some insight into the FES curriculum process (the first 'discovered' by Reg Lang and the second by G. Carrothers) --

"From R.D. Laing (*Knots*, Tavistock, 1970):

There is something I don't know
that I am supposed to know.
I don't know *what* it is I don't know,
and yet am supposed to know,
and I feel I look stupid
if I seem both not to know it
and not know *what* it is I don't know.
Therefore I pretend to know it.
This is nerve-racking
since I don't know what I must pretend to know.
Therefore I pretend to know everything.
I feel you know what I am supposed to know
but you can't tell me what it is
because you don't know that I don't know what it is.
You may know what I don't know, but not
that I don't know it,
and I can't tell you. So you will have to tell me everything.

"From Gertrude Stein:

. . . There is no use in telling more than you know,
no not even if you do not know it . . ."

To these, Reg Lang has recently added the following --

"From Confucius:

To Know that we know what we know
And that we do not know what we do not know
That is true knowledge.

"Expressed otherwise (in true FES style):

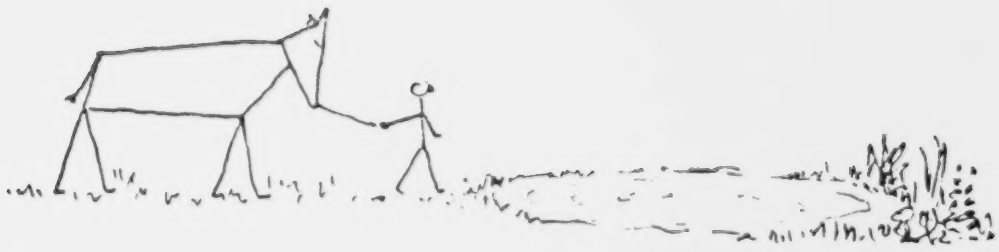
Know what you know	Know what you do not know
Do not know what you know	Do not know what you do not know

"

Beyond being ignorant of substance, there is a tendency not to appreciate one's own style of learning -- also central to self-directed learning. In many cases, students have not had the occasion or the opportunity for introspective self-discovery and evaluation of their own personal approaches to study and learning. An objective of the FES curriculum approach is to provide a setting for such discovery, in the formulation and implementation of the individual Plan of Study.

The crux of the individual transformation in the program of study is in the matter of 'knowing', which relates both to personal learning style and to social context -- a personal learning problem may originate from a social condition and a personal learning condition may be the source of a social problem. Thus we return to the interconnections among experience, instruction and reflection. Starting with individual personality and thereby setting off an iterative process of inner-directed and outer-directed learning is the essential purpose of the Plan of Study.

* * *



York University
Faculty of Environmental Studies

ESSAYS INTO ENVIRONMENTAL STUDIES

Being Interpretations and Amplifications
of the

FES CURRICULUM MODEL

FESKIT

Foray 1

BOND-AID FOR THE INCOMING STUDENT

A Guide for the First Plan of Study

1987-4

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BAND-AID FOR THE INCOMING STUDENT

A Guide for the First Plan of Study

The objective of this foray is to provide early and practical assistance to the incoming student in getting the first Plan of Study in place, without becoming unduly caught up in the intricacies and implications of the FES Curriculum Model, while perhaps stimulating the student to explore tentatively selected aspects of the Model that may attract initial interest -- leaving for subsequent phases of the study program, when the Plan of Study will inevitably want revision, the more complete understanding of the Model.

In the nature of the MES program (and, consequently, as specified in the Faculty Regulations[1]), each student needs to put into place at least two Plans of Study during the course of the program.[2] The 'first' Plan of Study comes during the initial term of study (Term One). Advancement from MES I to MES II may or may not occur with approval of the first Plan of Study.[3]

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[1]The formal statement of 'Regulations' exists to serve the social imperative to display the institutional basis for the individual program of study. But it is important to remember that the Regulations are a *consequence* of the FES curriculum approach and not the generator of it. In the language of the preamble to the Regulations: "These Regulations are intended to be a positive instrument to aid in accomplishing both individual and collective educational purposes of the members of the Faculty of Environmental Studies. They are a basic expression of the educational program of the Faculty and each regulation has a real educational purpose. Used as intended, by all members of the Faculty, these Regulations can provide the basis for carrying out imaginative and effective individual programs of study."

[2]See FES Regulation 6 for formal requirements of the Plan of study.

[3]See FES Regulation 7 for the meaning of the phases or 'levels' of MES I, MES II and MES III and for Faculty expectations for advancement from one level to another. For a discussion of the implications of the phases, see FESKIT Foray #6, Using the Logistical Framework.

The 'last' Plan of Study signals the final phase of the program and approval is normally accompanied by advancement from MES II to MES III. In between the first and last Plans of Study will be as many revisions as needed to serve the idiosyncratic purposes of the individual program of study.

PURPOSE OF THE FIRST PLAN OF STUDY

Upon enrolling in the Faculty, you will have discovered (perhaps somewhat to your surprise) the truth of the declaration that there is no pre-determined syllabus of study for the MES degree. You are expected to develop your own curriculum framework (Plan of Study), for consideration for approval by the Committee of Instruction. To do this, you must determine what it is that you propose to study (the subject matter of your program), the purposes and objectives that you have in studying it, the way in which it is to be studied during the program, and the array and sequence of study activities that you propose to undertake.[4]

The functions of the initial Plan of Study are: first, to define the challenge for the individual program by identifying your field of interest in Environmental Studies and the nature of your goals and approach to that field; and second, to respond to that challenge by setting forth the specific Area of Concentration that you propose to master (that is, the 'kernel' of your field) together with a sequence of learning experiences that may reasonably be expected to support your objectives and approach in mastering the Area of Concentration.

The first Plan of Study is a preliminary 'learning contract' between you and the Faculty, for the purpose of the MES program, keeping in mind that as your program progresses the Plan of Study may be revised as often as necessary to serve evolving circumstances, and must be revised at least once, for the final phase of the program (the 'last' Plan of Study).

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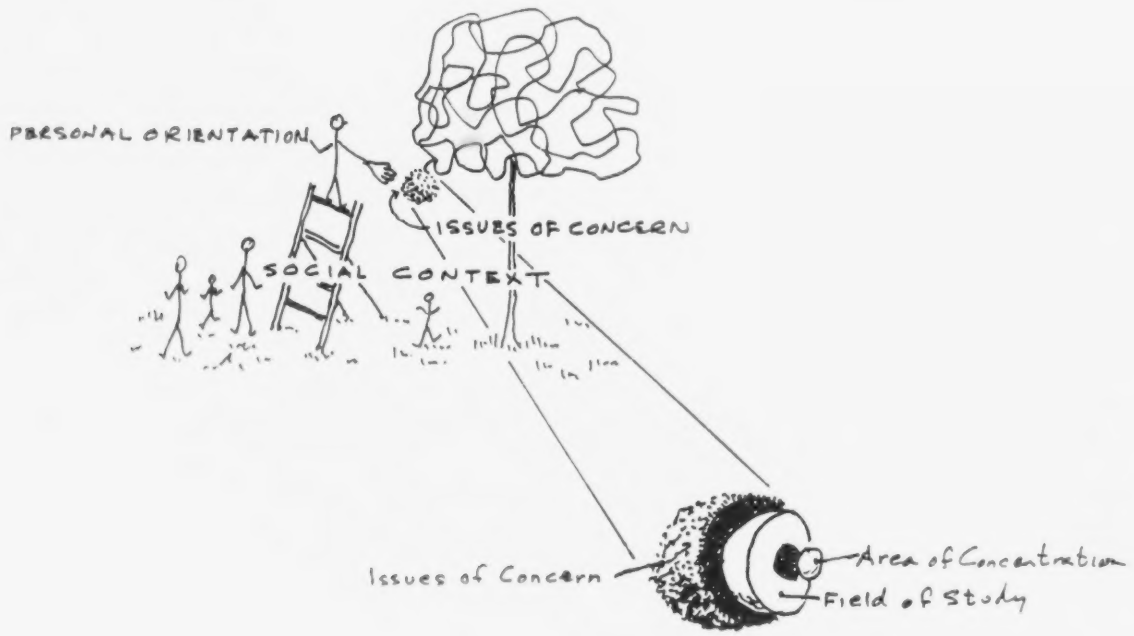
[4]If you wish to explore the general principles behind the FES Curriculum Model, see FESKIT Foray #2, A Pictorial Primer, and Foray #3, A Notational Representation.

An obvious and somewhat disconcerting aspect of the first Plan of Study is that you are expected to discuss many things that you may not yet have explored in any depth and therefore do not yet know much about. The first Plan must therefore be speculative in character. However, your speculations are expected to be grounded in what you do know. You do not enter the MES program as an 'empty box' -- you bring with you thoughts, ideas and understandings that are the basis of discourse. Thus, it makes sense to start the process by identifying what you are as the foundation for exploring what you want to become. You may find it helpful to think of this process as 'redefining' the discipline/profession that you bring with you into this first term of study in the MES program. That is, you are reformulating in particular terms for this program of study, the content, attitude and means that are inherent in your field of interest in environmental studies.

Figure 1. THE FES 'NUT' (Yours for the cracking).



FORMAT FOR THE FIRST PLAN OF STUDY

The Plan of Study document may be presented in a variety of forms, depending upon personal preference. Whatever the particular form and sequence, the following elements need to be dealt with in the first Plan.[5]

1. Personal Background

Describe your personal background and motivations. Discuss the issues of concern to you that are relevant to environmental studies. Explore your purpose and values in relation to the MES program. Try to keep this part of the document reasonably short, but say enough so that the reader may understand where you are coming from and where you are heading toward.

2. Field of Study

Identify and describe that part of your 'issues of concern' that you are selecting for the focus of exploration in *this* program, identifying the subject matter and essential content of your field -- that is, your general "area or sphere of action, operation or investigation". Give your field a five-word title and enter the title on the cover sheet of the Plan.[6]

3. Program Perspective

Discuss *your* perspective on the field that you have chosen for exploration. This will have two aspects: first, the social context within which your perception of your field relates to the way that society perceives your field; second, your personal orientation, your perception of the way that you like to think and act. The combination of these characteristics will

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[5]Note that there is a standard cover sheet for the Plan of Study, whatever form the content may take.

[6]If you wish to explore in more depth the concept of field, see FESKIT Foray #4, Interpreting 'Substantive Concerns'.

constitute your perspective for the program. Your perspective will, in general terms, fall within one of four program perspectives:

A - Praxis in Intervention/Intervention in Praxis,

B - Praxis in Observation/Observation in Praxis,

C - Theory in Intervention/Intervention in Theory,

D - Theory in Observation/Observation in Theory.

Identify which of the four perspectives most aptly describes your own perspective and enter it on the cover sheet of the Plan.[7]

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[7]This aspect of the Model seems to generate the most anxiety among incoming students -- perhaps arising from the subtlety of the differences between the potentially divergent needs of the individual student and of the University as an institution. The University has somewhat stable institutional needs for overseeing and recording the syllabus of study, its purposes, and its setting (aspects of social context); the student has idiosyncratic and dynamic needs for instruments of learning that respond to personal values and changing perceptions (aspects of personal orientation). The anxiety may be compounded if the student has not previously faced the same need for introspection and self-discovery that is required for the accurate assessment of program perspective; the student must resolve conflicting internal desires for guidance, direction, instruction on the one hand and for freedom, self-determination, flexibility on the other.

Thus, the designation of Program Quadrant is intended to reflect the two purposes of institutional need and personal need. First, the Quadrant indicates the dominant overall approach to subject matter that characterizes the program as a whole for the individual student, which may then be observed to have characteristics in common with the class of individual programs identified by the same Quadrant designation. Second, the Quadrant describes in general terms the academic 'container' within which the student is expected idiosyncratically and dynamically to employ the range of styles of thinking and particular approaches to understanding that are appropriate for the individual student, in relation and in response to evolving circumstances during the course of the program.

A commonly expressed concern is that by identifying a Quadrant you are locking yourself into a narrowly defined, rigid and irrevocable approach to the program. That is far from the reality, unless you, yourself, make it so. What *is* involved is a recognition and a record of your current thinking, as the basis for the evolution and implementation of your individual program.

If you wish to explore in greater depth the concept of program perspective, see FESKIT Foray #5, Implications of the 'Program Quadrants'.

4. Program Approach

Set forth *your* particular approach to the MES program, including the following elements:*

(a) Define your **Area of Concentration**, the specific subject matter that you propose to master in the program (the kernel of your field). Discuss the Area of Concentration as a whole, defining any terms that are particular to your interpretation. Break the Area into 'components' and elaborate on the meaning of each one. Remember that the Area of Concentration and its components are the *subject matter* of your program — that is, the *content* of that which you are going to study; if there are skills that you wish to acquire through the program these are not properly aspects of the Area of Concentration and should be discussed elsewhere in the Plan. Distill your Area of Concentration into 100 words or less and enter this abstract in the space provided for the purpose on the standard cover sheet of the Plan of Study.

(b) Describe your **Learning Strategy** for the program. Discuss how you envisage the general course of events through your program, touching on the major kinds of learning opportunities that you intend to pursue and the time frame that you have in mind.

(c) Identify the key **Learning Objectives** for your program. Set forth specific objectives relating to the Area of Concentration and its components. Indicate any other objectives relating to skills acquisition and to any expectations that are peripheral to the Area of Concentration. To be useful, the statement of each objective should indicate clearly how it may be determined that the objective has been met. Thus, the statement of each learning objective should contain three elements: the substance of what is to be accomplished; the extent

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*See FESKIT Foray #6, Using the Logistical Framework, for a more detailed discussion of the three elements, Area of Concentration, Learning Strategy, and Learning Objectives.

and depth of learning that is to be achieved in relation to that substance; and the purpose that is to be served by that learning, that is, having acquired the learning, what you expect to be able to do with it.

5. Learning Activities (Syllabus)

In the light of the above, set forth the specific learning activities that you propose to undertake (that is, 'courses'). Keep in mind that courses vary widely in purpose, nature and scope and that you are not limited to courses in FES.* You should be able to be quite definite about courses for the next term, but as the terms recede into the future, your expectations for courses must become increasingly tentative.

It is important to remember that your course registrations each term constitute an essential extension of your Plan of Study. The course outlines of regularly scheduled courses become a part of your Plan of Study and the detailed information required for registration in individual activities takes on added significance when considered as an integral part of the Plan of Study.

You may find it helpful to array your Learning Objectives and your Learning Activities in a 'matrix' to illuminate the relationship between them and to identify gaps in your proposed syllabus of study.

THE FIRST 'GENERAL EXAMINATION'

When you have prepared your first Plan of Study it is to be submitted for review and consideration by your faculty advisors in your first General Examination.[10] The word examine has a double meaning. On one hand it means

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*For a discussion of the different characteristics of courses and other learning experiences, and their relevance for building a program of study, see FESKIT Foray #6, Using the Logistical Framework.

[10]See FES Regulation 15 for formal requirements of General Examinations.

"to inspect or scrutinize carefully . . . to inquire into or investigate;" on the other hand, it means "to test the knowledge, reactions, or qualifications of (a pupil, candidate, etc.) . . . to subject to legal inquisition." [Random House]. Your first General Examination will fall within the first, more general meaning, and not the second meaning. The examination is in the nature of a discussion with your faculty advisors to explore the relevance of your initial Plan of Study. The session is tape recorded and advice and guidance (and any recommended formal action) is noted on a 'green sheet' for attachment to your Plan document. Formal action on approval of the Plan of Study is then taken by the Committee of Instruction.

Advancement to MES II is commonly considered in the first General Examination. The guideline for this purpose reads as follows:[11] "To advance to MES II the student is expected to be able to: (i) state clearly an Area of Concentration and its components; (ii) identify main currents of thought and practice in the field (taking into account the quadrant orientation selected) and major issues in the field; (iii) define the knowledge and skills needed to achieve 'substantive command' in the Area of Concentration in MES II; and (iv) for each component, set out learning objectives for acquiring the required knowledge and skills."

NEXT STEPS

You now have a Plan of Study in place. Based upon this Plan, you need to get on with "obtaining the essential command of the chosen Area of Concentration". During this process, it will almost certainly happen that your specific objectives for mastery of the components will alter as you get to know more about your field. Indeed, it may well transpire that your underlying purpose and goals undergo change. To accomodate such changes, the instrument of the Plan of Study is intended to be modified during the course of your program. You may reasonably expect to want to revise your Plan of Study at least once and possibly several times during MES II. However, it

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[11]FES Regulation 7.

is important that the Plan of Study be relatively stable for the final phase of the program, "the culminating experience of mastery in the field". Thus, it is required that the final revision to the Plan of Study be put into place for the transition from MES II to MES III -- this is the 'last' Plan of Study identified in the opening paragraphs.

. . . and so on and so, forth!

* * *

York University
Faculty of Environmental Studies

ESSAYS INTO ENVIRONMENTAL STUDIES

Being Interpretations and Amplifications
of the

FES CURRICULUM MODEL

FESKIT

Foray 2

A PICTORIAL PRIMER

1987-4

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THE FES CURRICULUM MODEL

A Pictorial Primer

The purpose of this foray is to introduce the salient characteristics of the FES Curriculum Model without elaborating upon them. Other forays deal in greater depth with the different aspects of the model.

The model is based on two essential premises:

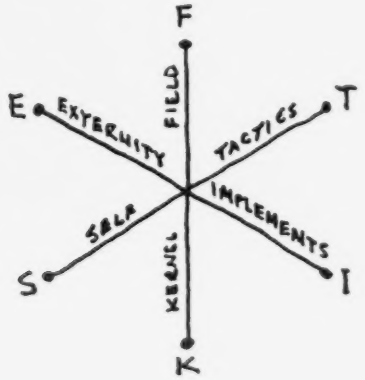
(a) The field of environmental studies is undefined, and infinite in scope;

(b) For our purposes, the conventional disciplines/professions do not in or by themselves provide a satisfactory point of departure for defining either the content or the approach for environmental study.

The model consists of six 'elements' represented graphically by six **AXES** that make up a three-dimensional framework:

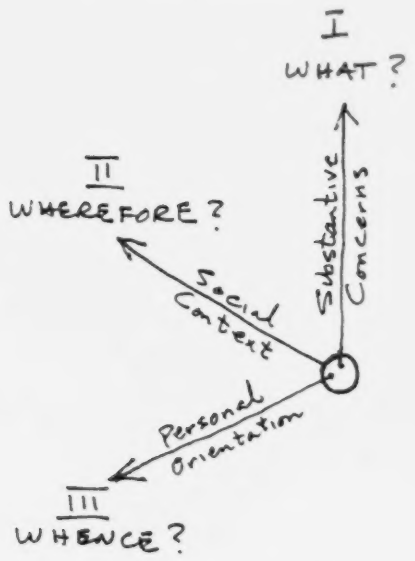
I. Substantive Concerns (Field),
II. Social Context (Externity),
III. Personal Orientation (Self),
IV. Area of Concentration (Kernel).
V. Learning Resources (Implements),
VI. Learning Strategy (Tactics).

Figure 1. THE SIX ELEMENTS OF THE MODEL.



The first three axes represent key **UNDERLYING INFLUENCES** that determine the essential nature of the individual program of study.

Figure 2. AXES OF UNDERLYING INFLUENCES.



WHAT? elicits the identification of the general subject matter for the individual program of study -- a personal **FIELD** of study (Axis I).

WHEREFORE? elicits the discovery of the opportunities and conditions for learning that derive from social conventions and institutional arrangements -- the perceived **SOCIAL CONTEXT**, or externity of the individual program (Axis II).

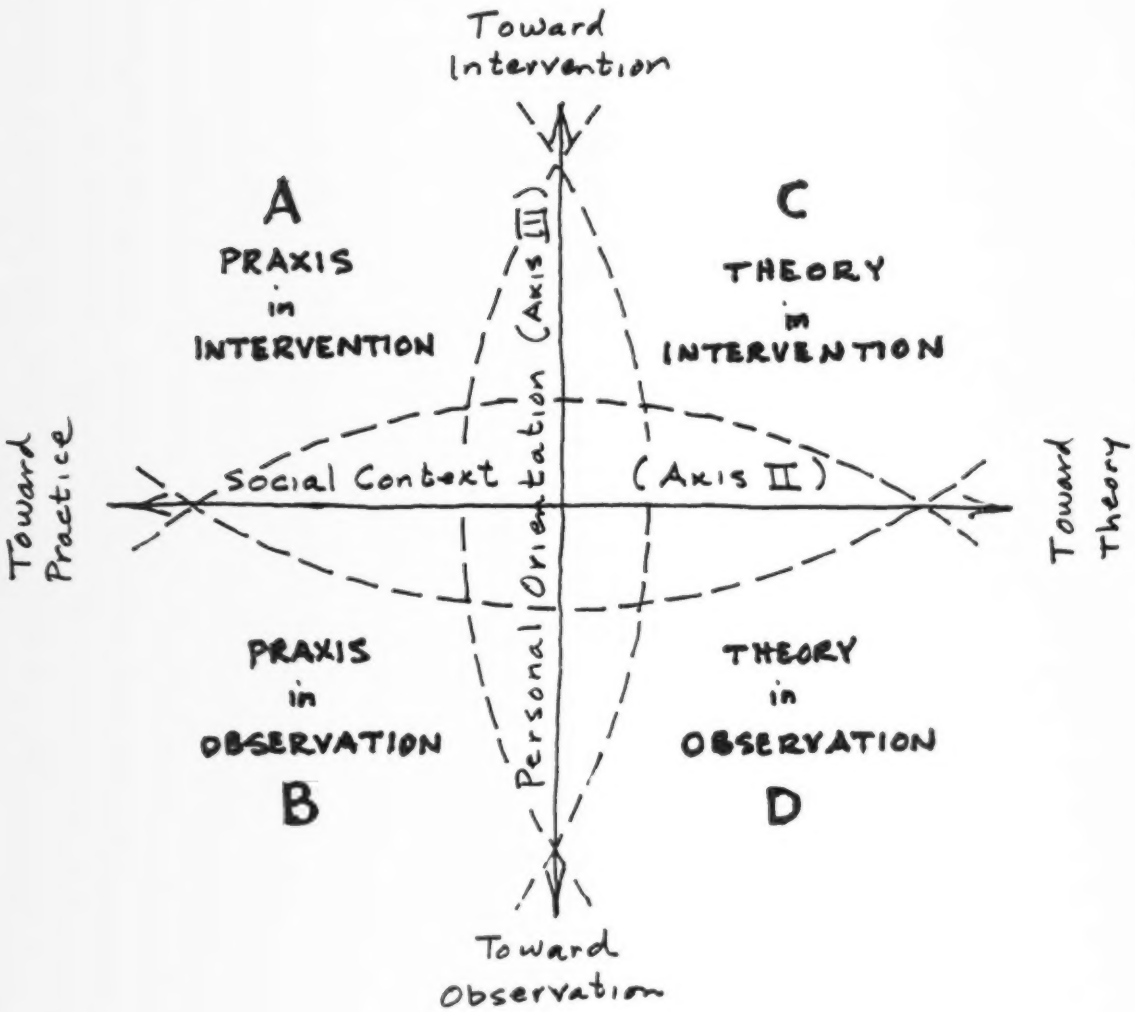
WHENCE? elicits the exploration of dominant motivations and personal styles of thinking of the individual student -- the **PERSONAL ORIENTATION**, the nature of self that will determine the form of study while in the program (Axis III).

The interactions of these axes of underlying influences will determine the nature of the **METHODOLOGICAL FRAMEWORKS** for the individual program of study:

	AXIS I (Field): **SUBSTANTIVE CONCERNS**	AXIS III (Self): **PERSONAL ORIENTATION**
AXIS II (Externity): **SOCIAL CONTEXT**	Nature, shape and limits of subject matter for study.	Contextual perspective for program of study.
AXIS III (Self): **PERSONAL ORIENTATION**	Goals and strategic purpose of study.	

The overlay of Axis II (Social Context) and Axis III (Personal Orientation) reflects the range of perspectives that may be adopted for the program of study. Four primary perspectives are identified as **PROGRAM QUADRANTS**, which represent the context of study to be selected by the student for the purposes of the individual program of study.

Figure 3. THE PROGRAM QUADRANTS.



There are no hard boundaries between the quadrants. The quadrants overlap, and distinctions at the edges are difficult to perceive. Nevertheless, there are differences in the *dominant* characteristics of the four perspectives, as indicated by the titles given to the quadrants:

A - Praxis in Intervention,
B - Praxis in Observation,
C - Theory in Intervention,
D - Theory in Observation.

Each of these titles may be understood in two ways:

A. praxis in intervention -- that is, the carrying out of intervention (overlap with quadrant B), and
intervention in praxis -- that is, the influencing of practices of intervention (overlap with quadrant C);

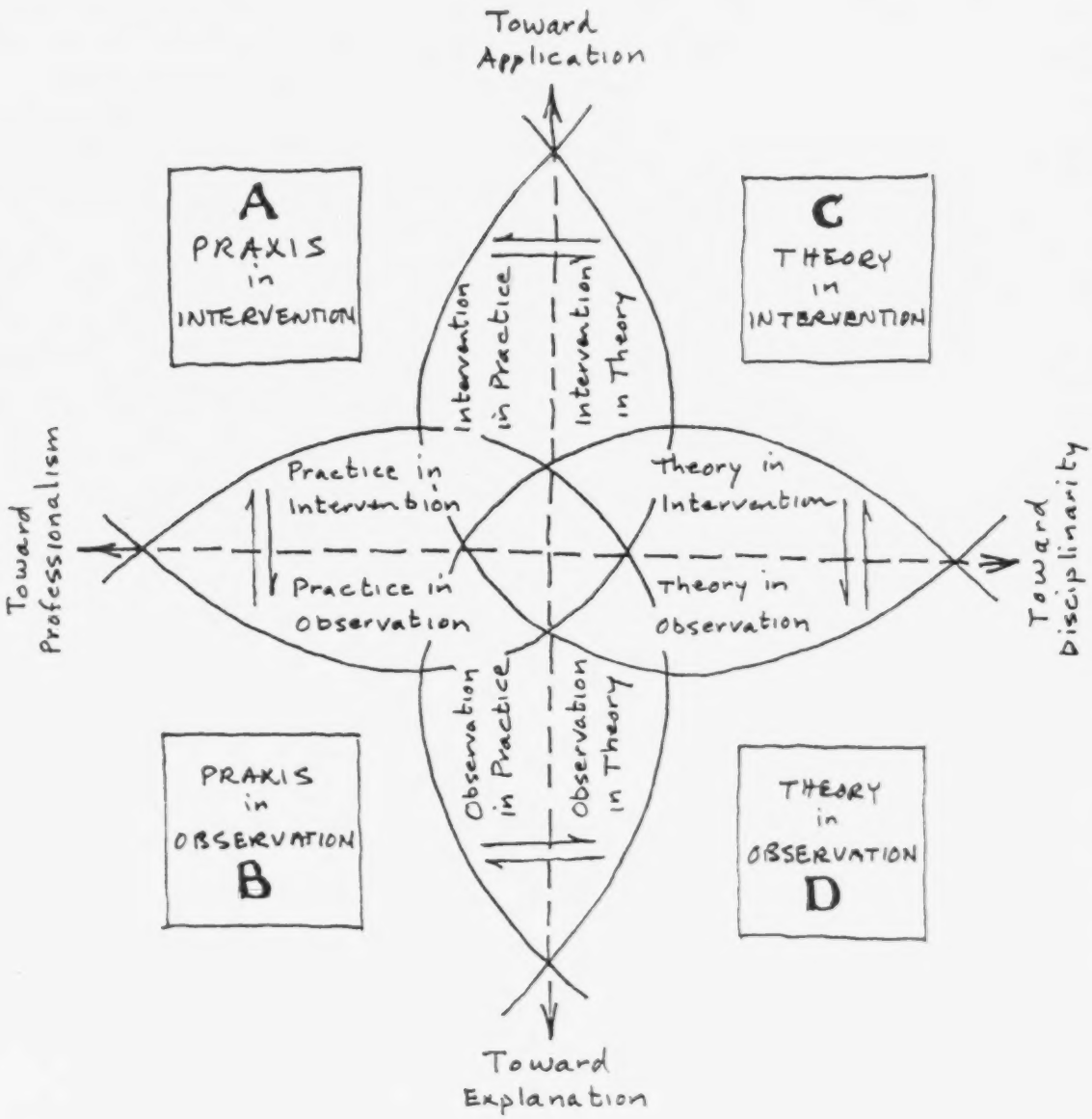
B. praxis in observation -- that is, the carrying out of observation (overlap with quadrant A), and
observation in praxis -- that is, the exploring of practices of observation (overlap with quadrant D);

C. theory in intervention -- that is, the conceptualizing of intervention (overlap with quadrant D), and
intervention in theory -- that is, the influencing of principles of intervention (overlap with quadrant A);

D. theory in observation -- that is, the conceptualizing of observation (overlap with quadrant C), and
observation in theory -- that is, the exploring of principles of observation (overlap with quadrant B).

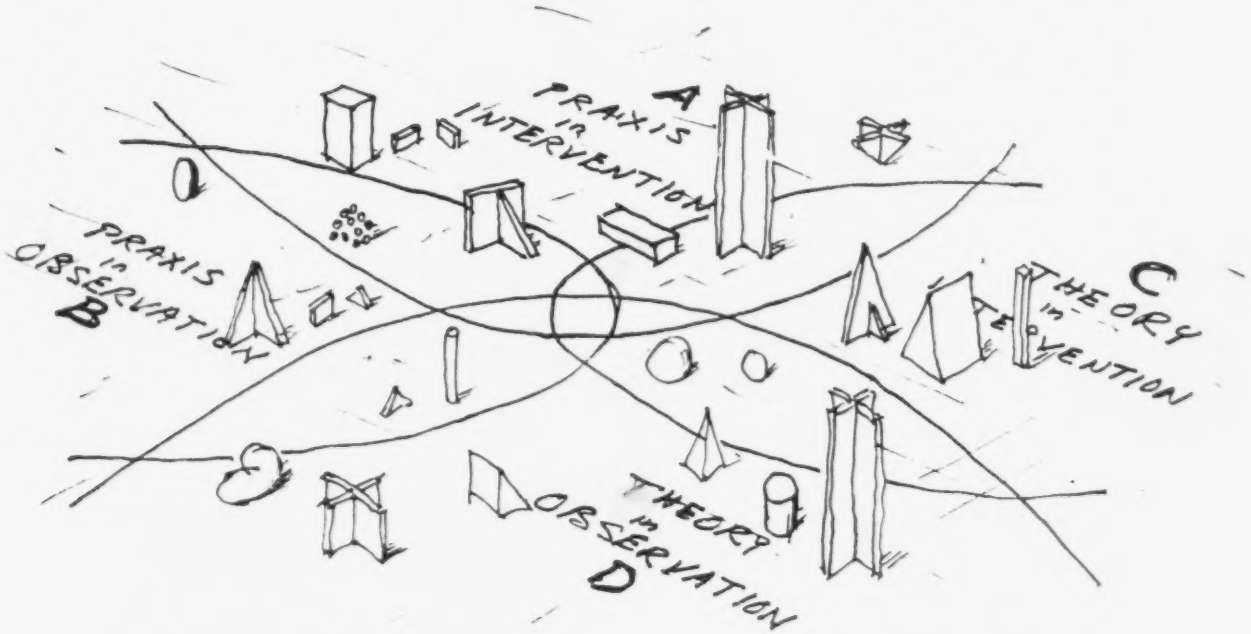
Observe that the same words used in describing the Program Quadrants may, in a different setting, refer to the subject matter or object of study, rather than to the context or perspective of study. In the sense of 'that which is to be studied', content can be distinguished from context by use of the preposition 'of'. For example: "practices of intervention" would be an Area of Concentration (the subject), while "theory in observation" would be a Program Quadrant (the perspective).

Figure 4. OVERLAP OF THE PROGRAM QUADRANTS



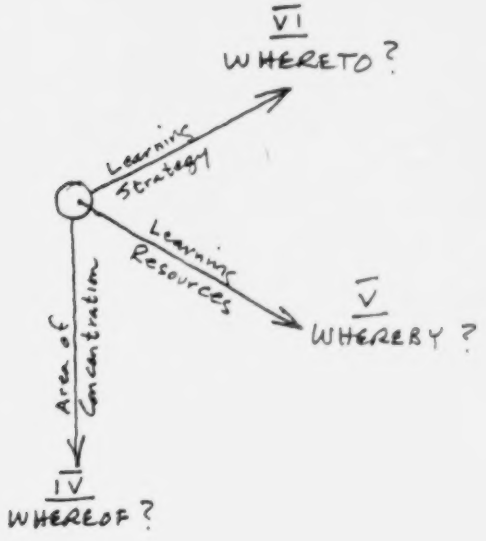
The shape of individually identified substantive concerns, located in relation to Social Context and Personal Orientation, provides the underlying basis for the individual program of study.

Figure 5. INDIVIDUAL 'FIELDS' OF STUDY, IN CONTEXT.



When taken together, the three axes presented above -- the axes of underlying influences -- respond to the basic query, WHY? The other three axes -- responding to the basic query, HOW? -- represent **LOGISTICAL ELEMENTS** which rest upon the foundation formed by the axes of underlying influences.

Figure 6. AXES OF LOGISTICAL ELEMENTS.



WHEREOF? elicits definition of the nature and interrelationship of the components that go to make up the **AREA OF CONCENTRATION** -- the kernel of the field of substantive concerns that constitutes the specific subject of study for the individual program (Axis IV).

WHEREBY? elicits identification of the nature and range of **LEARNING RESOURCES**, the implements that are available to the student in pursuing the individual program of study (Axis V).

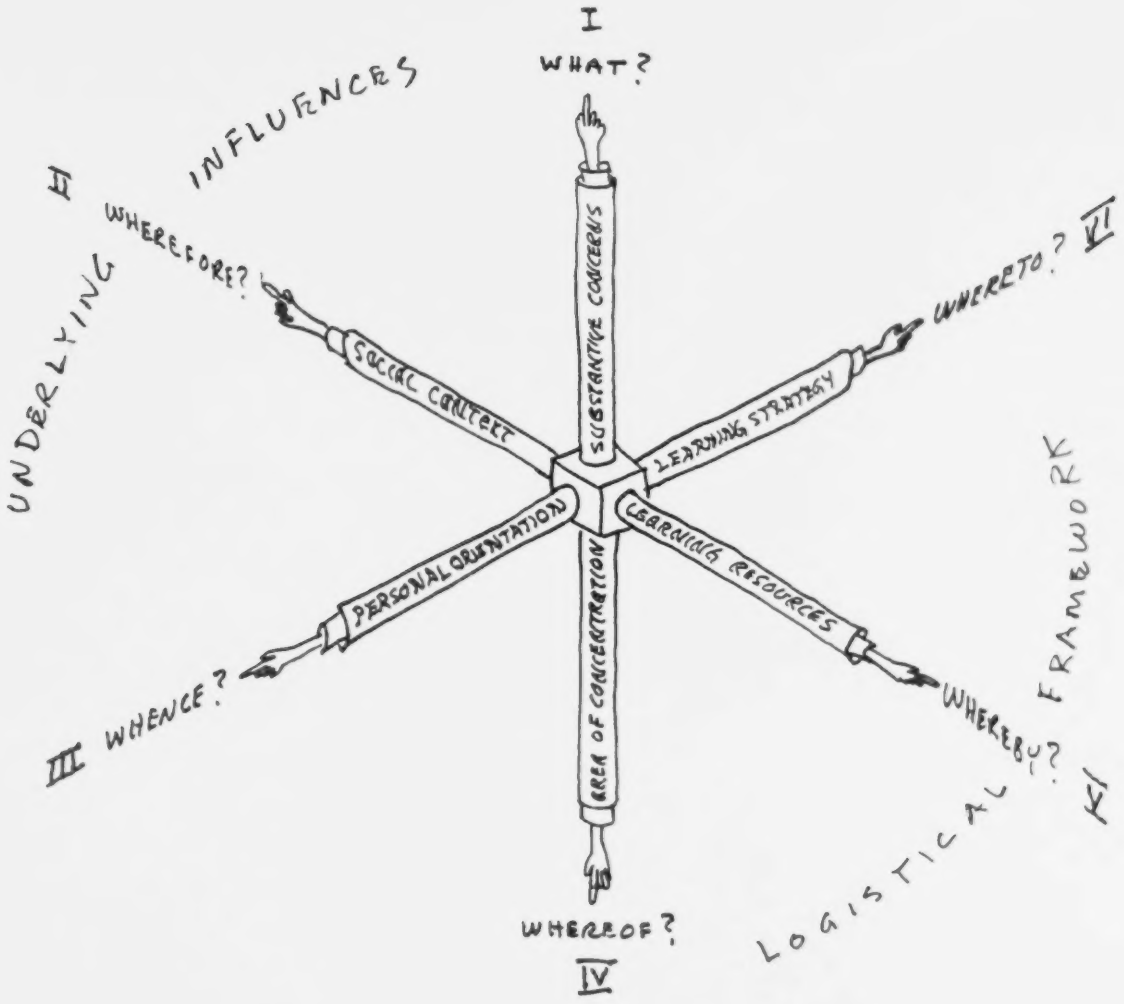
WHERETO? elicits the development of a **LEARNING STRATEGY** by the individual student -- the setting forth of general goals and specific objectives for the individual program and the tactical probing of learning opportunities to determine the appropriate activities to serve those objectives (Axis VI).

The interactions of the three axes of logistical elements suggest modes for carrying out the individual program of study:

	AXIS IV (Kernel): **AREA OF CONCENTRATION**	AXIS VI (Tactics): **LEARNING STRATEGY**
AXIS V (Implements): **LEARNING RESOURCES**	Array of learning opportunities relevant for the individual program.	Selection and sequence of learning activities (syllabus).
AXIS VI (Tactics): **LEARNING STRATEGY**	Evaluation of learning opportunities to respond to learning objectives.	

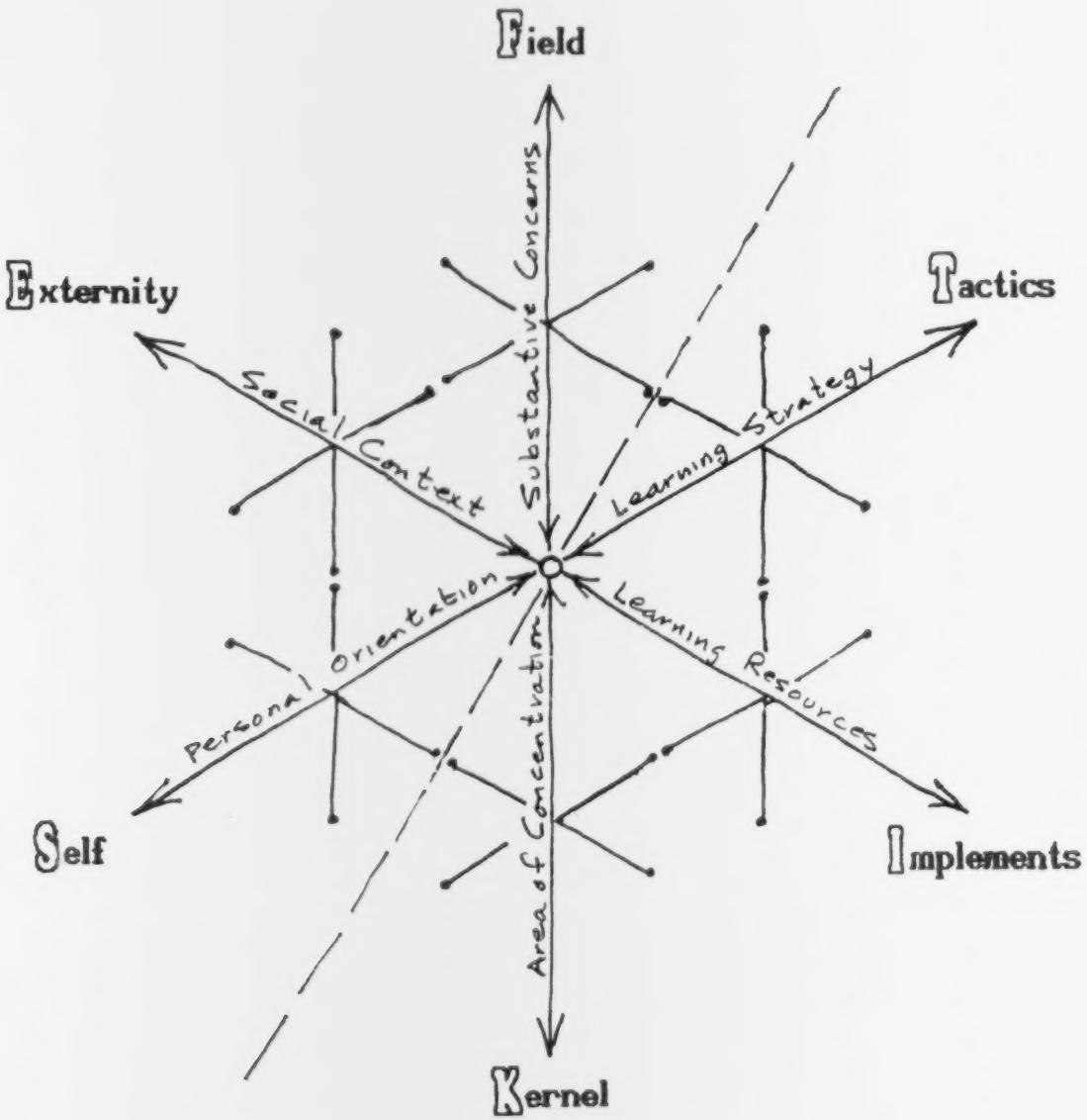
When reassembled, the six axes form the complete curriculum model.

Figure 6. THE AXES OF THE CURRICULUM MODEL.



It may be observed that each of the axes has a complex of sub-axes that imply more sophisticated meanings for the six elements of the curriculum model.

Figure 7. FESKIT.



The meanings of the six elements of FESKIT, as excerpted from The Oxford Universal Dictionary (1955), are as follows:

F Field (fīld), *sb.* [Com. WGer.: OE. *feld*:—OTeut. **felpu-z.*]
III. 1. An area or sphere of action, operation, or investigation ME.

SUBSTANTIVE CONCERNS (Axis I)

E Externity (ekstə·rnĭti). 1713. [f. med.L. *externare* to make external + -ITY.] Outwardness; also, the external part.

SOCIAL CONTEXT (Axis II)

S Self (self), *pron.*, *a.*, and *sb.* [Com. Teut.; OE. *self*, *selfa* :—OTeut. **selbo-*, **selbon-*; ult. etym. obscure.]
C. *sb.* I. From the pronoun.
4. a. What one is at a particular time or in a particular aspect or relation;

PERSONAL ORIENTATION (Axis III)

K Kernel (kə·rnĕl), *sb.*1 [OE. *cyrnel*, dim. of *corn* seed, grain, CORN :—OTeut. **kurnilo-*.]
6. A nucleus; a core; a centre of formation 1641.

AREA OF CONCENTRATION (AXIS IV)

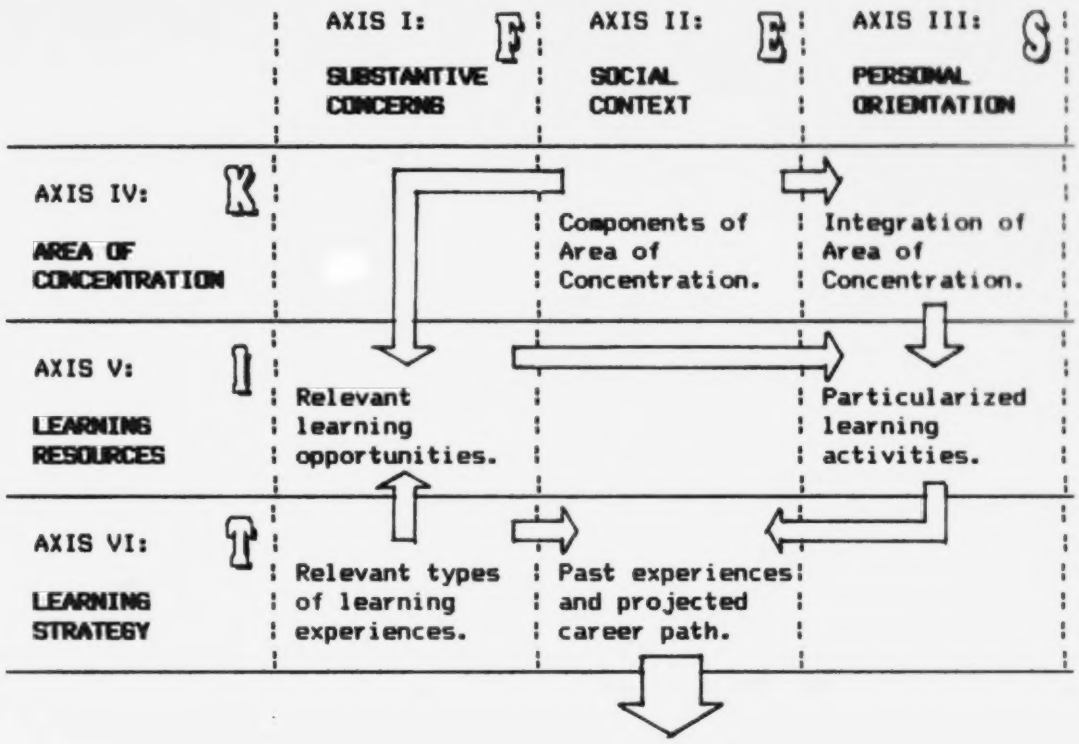
I Implement (i·mplĭmĕnt), *sb.* 1454. [app. ad. L. *implementum* a filling up, taken as = 'that which serves to fill up or stock (a house, etc.)'. Sometimes referred to EMPLOY *v.*, and taken as = 'thing employed or used'.]
I. 2. *pl.*
The apparatus, instruments, etc. employed in any trade or in executing any piece of work;

LEARNING RESOURCES (Axis V)

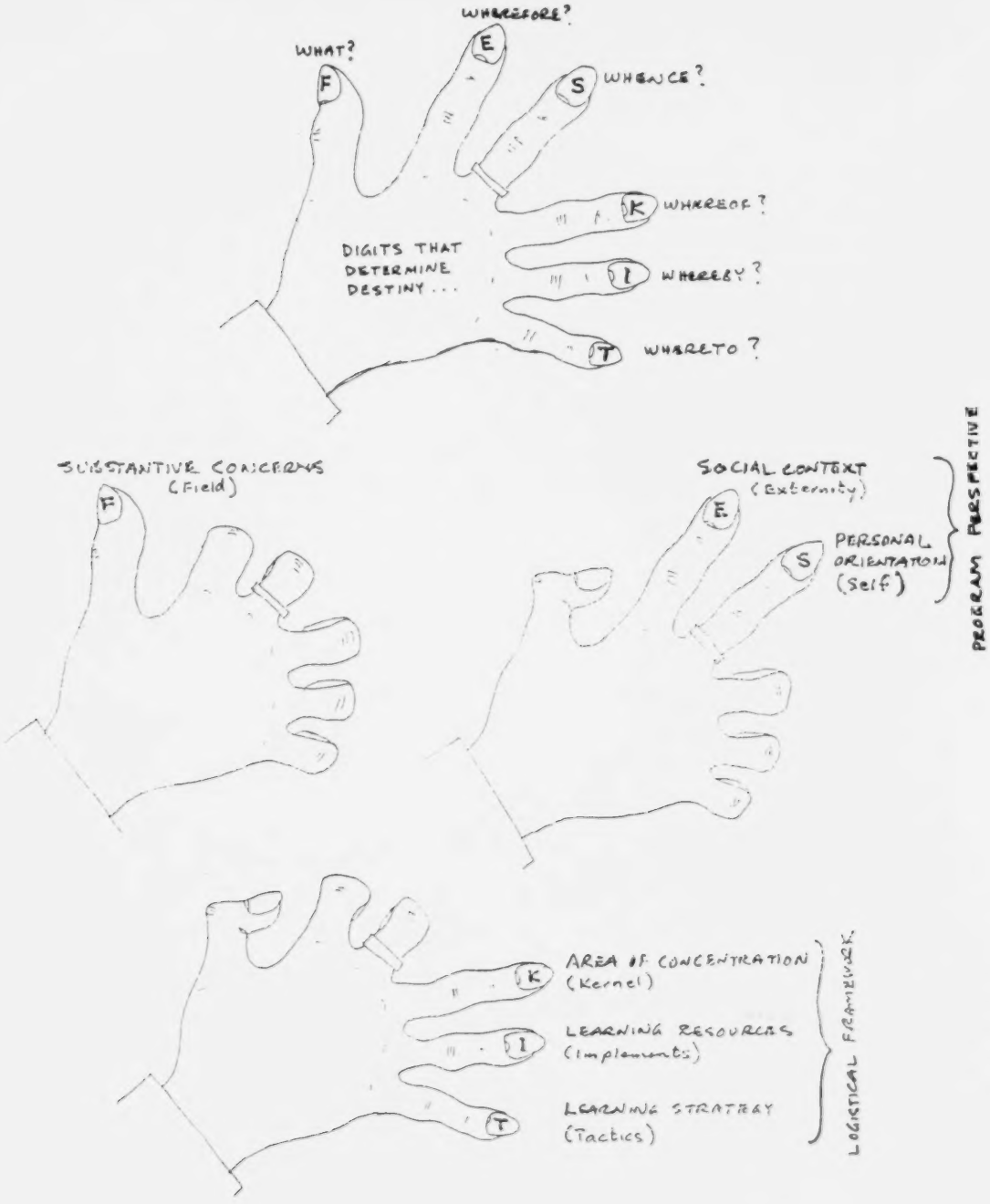
T Tactics (tæ·ktiks), *sb. pl.* 1626. [pl. of TACTIC *sb.*, tr. mod.L. *tactica* pl., Gr. τὰ τακτικά, lit. 'matters pertaining to arrangement'; see -IC 2.] 2.
Of or relating to arrangement, esp. the arrangement of procedure with a view to ends 1876.

LEARNING STRATEGY (Axis VI)

The interactions of the two sets of axes establish the framework for the development of the individual **PLAN OF STUDY** for the program:



Off-hand, the **FES CURRICULUM MODEL** may be shown by rule-of-thumb (and fingers):



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ESSAYS INTO ENVIRONMENTAL STUDIES

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FESKIT

Foray 3:

A NOTATIONAL REPRESENTATION

1987-4

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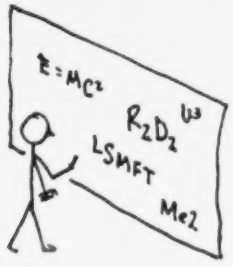


THE FES CURRICULUM MODEL

A Notational Representation

The objective of this foray is to derive a notational characterization of the program of study for the MES degree, given that:

1. the field of environmental studies is undefined, and infinite in scope; and
2. the conventional disciplines/professions do not in or by themselves provide a satisfactory point of departure for defining either the content or the approach.

* * *

It may be seen that two aspects are involved in 'disciplining' environmental studies through a program of study:

1. defining the subject matter for study (substantive concerns); and
2. deciding what to do to the subject matter (methodological framework).

Symbolically,

let P = program of study,
F = substantive concerns (field),
M = methodological framework.

Thus, in general terms,

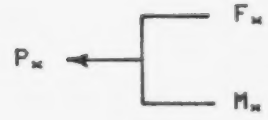
(1) $P = f(F) + f(M)$.

In specific terms, the FES curriculum is based on the principle of individually determined programs of study -- relating both to the subject matter to be explored and to the methodological approach to the study.

Thus, for the individual student (x),

(2) $P_x = f(F_x) + f(M_x)$

where P_x = the individual Plan of Study,
F_x = the individually defined field or focus of study,
M_x = the methodological framework for the individual program.

or 

(Eq'n) (2)

It may be noted that one interpretation of the overall Faculty program is

$$P = f(P_1 + P_2 + \ldots + P_x + \ldots + P_n) = f(\sum_i^n P_x)$$

* * *

To amplify the model, the methodological framework (M) may be seen to consist of two aspects:

1. the perspective of study (Program Quadrant); and
2. the logistical superstructure for carrying out the study (the individual syllabus of study).

Thus,

(3) $M_w = f(Q_w) + f(L_w)$

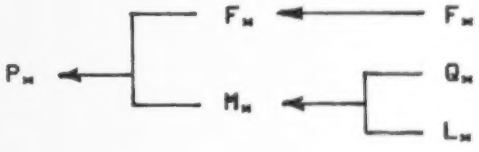
where Q_w = the chosen Program Quadrant,

L_w = the individual syllabus of study.

And, from equation (2),

(4) $P_w = f(F_w) + f(Q_w) + f(L_w)$

or



(Eq'ns) (2) (4)

The perspective of study (Program Quadrant) is determined by two fundamental factors:

1. the perception of the social context in which the subject matter is approached; and
2. the personal orientation of the student.

Symbolically,

let E = the external influences of social context (externity),

S = the internal influences of personal orientation (self).

Thus, for the individual student,

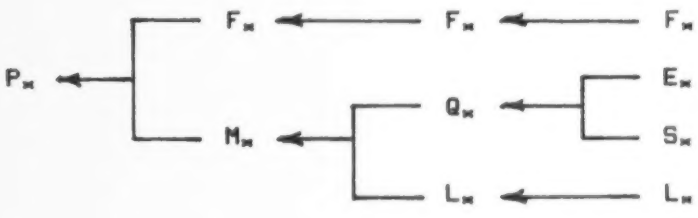
(5) $Q_w = f(E_w) + f(S_w)$

and, from equations (2), (3), and (4),

(6) $P_w = f(F_w) + [f(E_w) + f(S_w)] + f(L_w)$

$= f(F_w) + f(E_w, S_w) + f(L_w)$

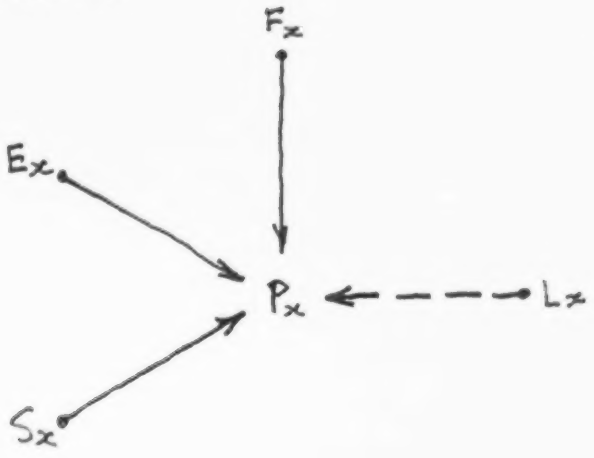
or



(Eq'ns) (2) (4) (6)

FIGURE 1.

Reflecting the fundamental influences on the individual program of study.



Looking further into the logistical framework (L), it may be seen that the individual program of study will be conditioned by the way the defined Area of Concentrsation is structured through its components (including the way the components are integrated), and by the institutional setting for study and the resources that are available to the student (including the way the student interacts with them). The logistical framework may be expressed in three elements:

1. the Area of Concentration and its components;
2. the learning resources that are available to the student;
3. the learning objectives and strategy for the program.

Symbolically,

(7) $L_x = f(K_x) + f(I_x) + f(T_x)$

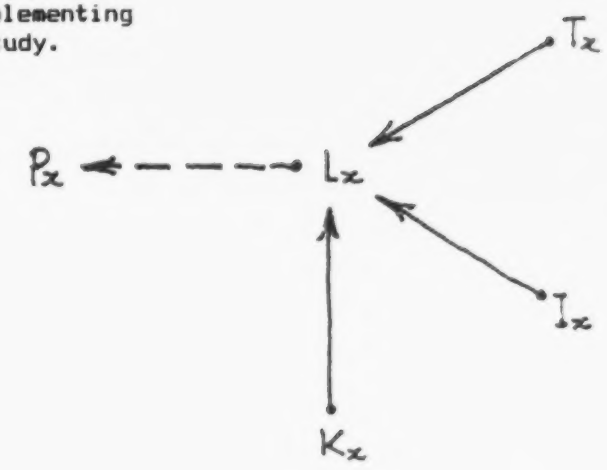
where K_x = the Area of Concentration (kernel of study),

I_x = learning resources and opportunities (implements),

T_x = personal learning objectives and activities for the program (tactics).

FIGURE 2.

Reflecting the logistical framework for implementing the program of study.



The logistical elements may be derived as follows:

(8) $K_w = f(k_1 + k_2 + \ldots + k_j + \ldots + k_n)$

$= f(\sum_1^n k_j)$

where k_j = a component of the Area of Concentration.

(9) $I_w = f(i_1 + i_2 + \ldots + i_j + \ldots + i_n)$

$= f(\sum_1^n i_j)$

where i_j = a specific learning resource/opportunity.

(10) $T_w = f(t_1 + t_2 + \ldots + t_j + \ldots + t_n)$

$= f(\sum_1^n t_j)$

where t_j = a particular learning objective and activity.

Substituting the values for Q_w and L_w from equations (5) and (7) into equation (3) gives the full depiction of the methodological framework (M) for the individual program of study:

(11) $M_w = [f(E_w) + f(S_w)] + [f(K_w) + f(I_w) + f(T_w)]$

$= f(E_w, S_w) + f(K_w, I_w, T_w)$

The range of elements influencing the individual Plan of Study is obtained by combining equation (2) and equation (11):

(12) $P_x = f(F_x) + f(E_x,S_x) + f(K_x,I_x,T_x)$

where F_x = substantive concerns (Axis I),
E_x = social context (Axis II),
S_x = personal orientation (Axis III),
K_x = area of concentration (Axis IV),
I_x = learning resources/opportunities (Axis V),
T_x = learning objectives/activities (Axis VI).

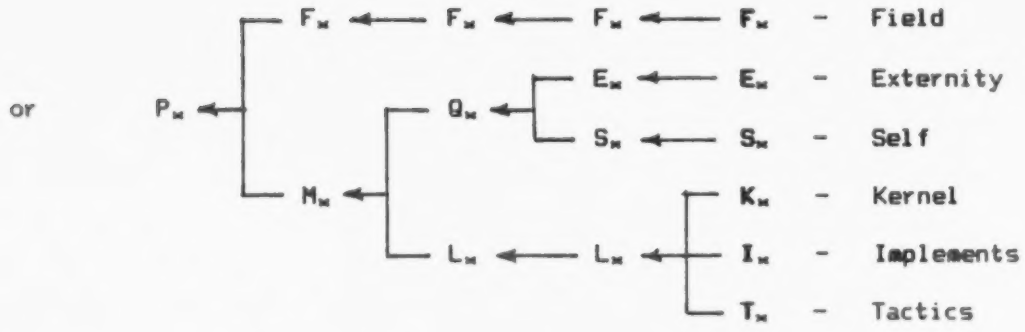
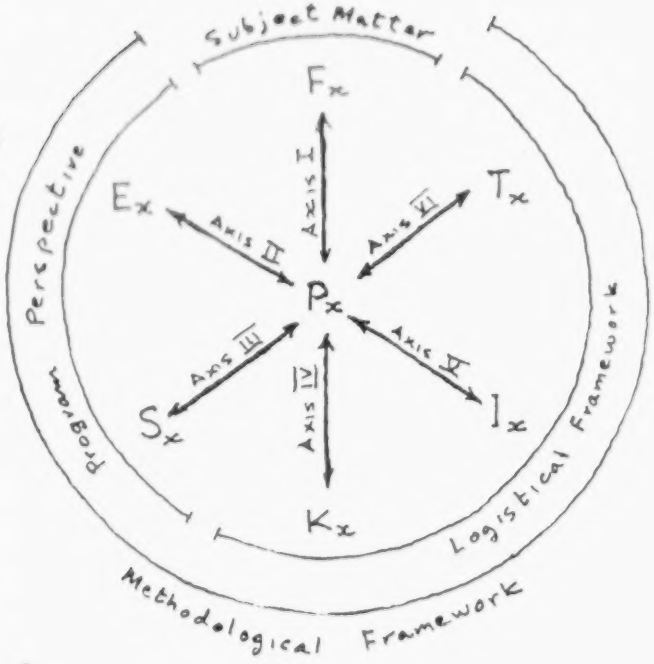


FIGURE 3.

Reflecting the elements influencing the individual Plan of Study.



Overall, the student brings to the elements underlying the individual program a personal capacity to integrate and synthesize, that is not readily defined and measured but which must be acknowledged as a key factor in determining the individual Plan of Study. (This may be seen as the 'inner-disciplinarity' that is identified in the PreAmble.)

In addition, the perceptions of the needs of the student that are held by faculty advisors (individually and collectively) constitute a significant conditioning factor in the formulation of the Plan of Study.

Symbolically,

let Ω = the factor of personal synthesis,

Ψ = the factor of faculty perception of student needs.

The general depiction of the model ultimately becomes:

(13) $P_w = \Omega \cdot \{f\Psi \cdot [f(F_w) + f(Q_w) + f(L_w)]\}$

(14) $P_w = \Omega \cdot \{f\Psi \cdot [f(F_w) + f(E_w, S_w) + f(K_w, I_w, T_w)]\}$

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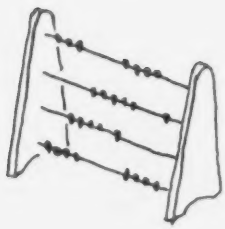

RECAPITULATION

(1) $P = f(F) + f(M)$

(2) $P_x = f(F_x) + f(M_x)$

(3) $M_x = f(Q_x) + f(L_x)$

(4) $P_x = f(F_x) + f(Q_x) + f(L_x)$

(5) $Q_x = f(E_x) + f(S_x)$

(6) $P_x = f(F_x) + f(E_x,S_x) + f(L_x)$

(7) $L_x = f(K_x) + f(I_x) + f(T_x)$

(8) $K_x = f(k_1 + k_2 + \ldots + k_j + \ldots + k_n) = f\{\sum_1^n k_j\}$

(9) $I_x = f(i_1 + i_2 + \ldots + i_j + \ldots + i_n) = f\{\sum_1^n i_j\}$

(10) $T_x = f(t_1 + t_2 + \ldots + t_j + \ldots + t_n) = f\{\sum_1^n t_j\}$

(11) $M_x = f(E_x,S_x) + f(K_x,I_x,T_x)$

(12) $P_x = f(F_x) + f(E_x,S_x) + f(K_x,I_x,T_x)$

(13) $P_x = \Omega\cdot\{f\Psi\cdot[f(F_x) + f(Q_x) + f(L_x)]\}$

(14) $P_x = \Omega\cdot\{f\Psi\cdot[f(F_x) + f(E_x,S_x) + f(K_x,I_x,T_x)]\}$

where

P = Program of study

F = Substantive concerns (field)

M = Methodological framework

P_x = Individual Plan of Study

F_x = Individually defined field of study

Q_x = Perspective of study (Program Quadrant)

L_x = Logistical superstructure (syllabus)

E_x = External influences of social context

S_x = Internal influences of personal orientation

K_x = The Area of Concentration (kernel of study)

k_j = A component of the Area of Concentration

I_x = Learning resources (implements)

i_j = A particular learning opportunity

T_x = Learning objectives and activities

t_j = A particular learning activity

Ω = Factor of personal synthesis

Ψ = Factor of faculty perception of student needs

APPENDIX

(Excerpted from The Oxford Universal Dictionary, 1955)

F

Field (fīld), *sb.* [Com. WGer.: OE. *feld*:—OTeut. **felpu-z.*]

III. 1. An area or sphere of action, operation, or investigation ME.

SUBSTANTIVE CONCERNS (Axis I)

E

Externity (ekstə·nĭti). 1713. [f. med.L. *externare* to make external + -ITY.] Outwardness; also, the external part.

SOCIAL CONTEXT (Axis II)

S

Self (self), *pron.*, *a.*, and *sb.* [Com. Teut.; OE. *self*, *selfa* :—OTeut. **selbo-*, **selbon-*; ult. etym. obscure.]

C. *sb.* I. From the pronoun.

4. a. What one is at a particular time or in a particular aspect or relation;

PERSONAL ORIENTATION (Axis III)

K

Kernel (kə·nĕl), *sb.*1 [OE. *cyrnel*, dim. of *corn* seed, grain, CORN :—OTeut. **kurnilo-*.]

6. A nucleus; a core; a centre of formation 1641.

AREA OF CONCENTRATION (AXIS IV)

I

Implement (i·mplĭmĕnt), *sb.* 1454. [app. ad. L. *implementum* a filling up, taken as = 'that which serves to fill up or stock (a house, etc.)'. Sometimes referred to EMPLOY *v.*, and taken as = 'thing employed or used'.]

I. 2. *pl.* The apparatus, instruments, etc. employed in any trade or in executing any piece of work;

LEARNING RESOURCES (Axis V)

T

Tactics (tæ·ktiks), *sb. pl.* 1626. [pl. of TACTIC *sb.*, tr. mod.L. *tactica* pl., Gr. τὰ τακτικά, lit. 'matters pertaining to arrangement'; see -IC 2.] 2.

Of or relating to arrangement, esp. the arrangement of procedure with a view to ends 1876.

LEARNING STRATEGY (Axis VI)

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ESSAYS INTO ENVIRONMENTAL STUDIES

Being Interpretations and Amplifications
of the

FES CURRICULUM MODEL

FESKIT

Foray 4

THE NOTION OF ENVIRONMENT

Interpreting 'Substantive Concerns'

1987-4

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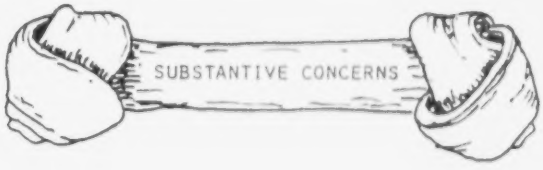
THE NOTION OF ENVIRONMENT

Interpreting 'Substantive Concerns'

This is the first of three forays that explore some of the ramifications of the six axes of the FES Curriculum Model:

I Substantive Concerns,
II Social Context,
III Personal Orientation,
IV Area of Concentration,
V Learning Resources,
VI Learning Strategies.

This foray nibbles at Axis I.



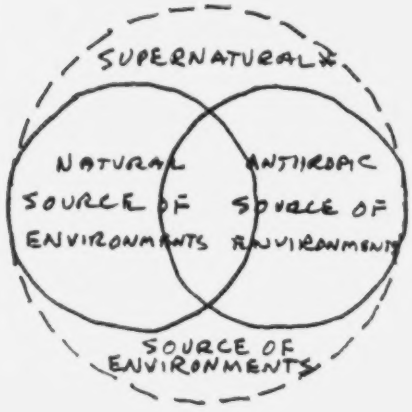
Lying behind Axis I of the Model are various ways of perceiving and conceptualizing the environment: (1) by SOURCE; (2) by FORM; (3) by KIND; (4) by SIZE; (5) by ESSENCE; (6) by INTERFACE; (7) by THOUGHT.

(1) Environments have origin which, for the purpose of this interpretation, are seen in two basic **SOURCES:**

1. Natural origin;
2. Anthropic origin.

It may be argued that 'Nature' is the single source of all environments. However, for this anthropocentric interpretation, humankind is seen as a discrete category of environmental origin, while at the same time acknowledging that the human animal is also an element of 'Nature'. Therefore, the term 'Anthropic' is used to refer to those aspects of humankind that are the origins of environments, in order to make the distinction from those aspects of humankind that may be seen to be 'of' Nature and thus, in that sense, 'Natural'.

Figure 1. ENVIRONMENTAL SOURCE.

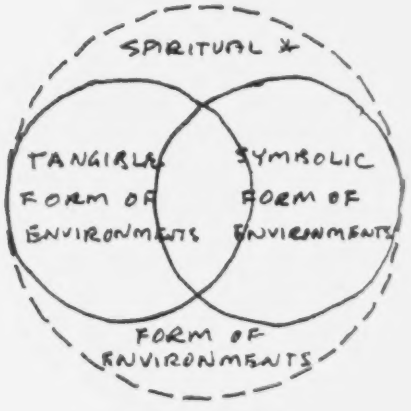


(2) Environments may be seen to have two sorts of FORM:

1. Tangible form;
2. Symbolic form.

In this interpretation, tangible forms of environment derive from Nature or from Humankind or from a combination of the two; symbolic forms of environment derive from Humankind.

Figure 2. ENVIRONMENTAL FORM.



*There is fundamental dispute on the origins, if not the existence, of spiritual environments. For the purpose of our rather more mundane interpretation, the concepts of supernatural origin and spiritual form of environment are hereafter set aside.

(3) Combining SOURCE and FORM, environments may be perceived to be of several **KINDS:**

ENVIRONMENTAL SOURCE	ENVIRONMENTAL FORM: Tangible	ENVIRONMENTAL FORM: Symbolic
Natural	1. **EVOLVED ENVIRONMENTS**	3. **PERSONAL ENVIRONMENTS**
Anthropic	2. **FABRICATED ENVIRONMENTS**	4. **SOCIAL ENVIRONMENTS**

Figure 3. KINDS OF ENVIRONMENT.

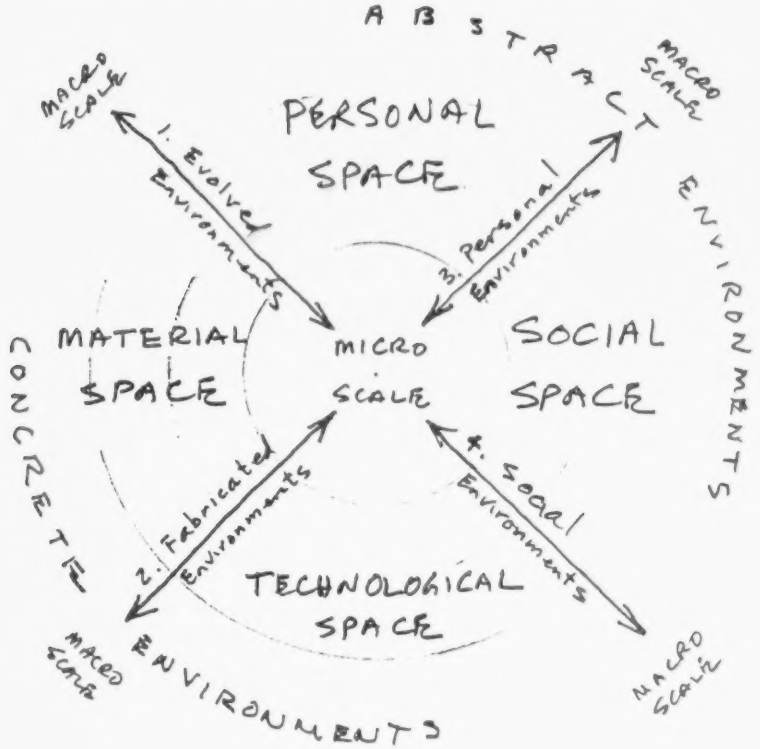
(4) Kinds of environments may be perceived to define **SPACE** in two different ways -- ABSTRACT and CONCRETE:

KIND OF ENVIRONMENT

	TANGIBLE		SYMBOLIC	
	1. Evolved	2. Fabricated	3. Personal	4. Social
Abstract definition	**PERSONAL SPACE**	**SOCIAL SPACE**	**MATERIAL SPACE**	**TECHNOLOGICAL SPACE**
Concrete definition	**MATERIAL SPACE**	**TECHNOLOGICAL SPACE**	**PERSONAL SPACE**	**SOCIAL SPACE**

and in each of these ways, the size of these environments is interpreted through **SCALE.**

Figure 4. ENVIRONMENTAL SPACE AND SCALE.



(5) Environments have INTRINSIC characteristics and SUPERIMPOSED characteristics, which may be seen to define the **ESSENCE** of environments:

KIND OF ENVIRONMENT

	TANGIBLE		SYMBOLIC	
	1. Evolved	2. Fabricated	3. Personal	4. Social
Intrinsic essence	**PRISTINE ENVIRONMENTS**	**ADAPTED ENVIRONMENTS**	**INTERNAL ENVIRONMENTS**	**CULTURAL ENVIRONMENTS**
Superimposed essence	**MODIFIED ENVIRONMENTS**	ARTIFICIAL ENVIRONMENTS	**BEHAVIOURAL ENVIRONMENTS**	**SOCIETAL ENVIRONMENTS**

Figure 5a.

ESSENCE OF
TANGIBLE ENVIRONMENTS

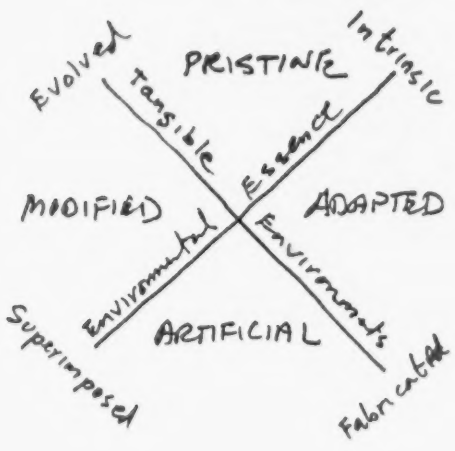
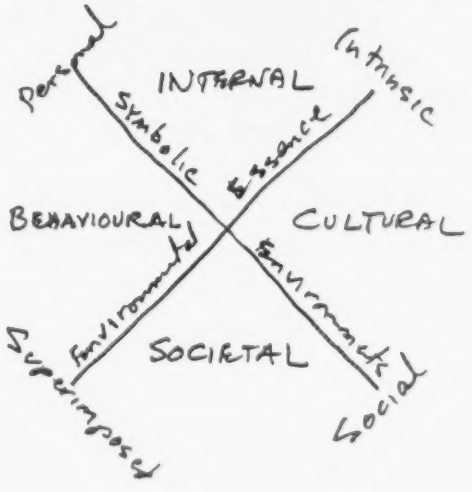


Figure 5b.

ESSENCE OF
SYMBOLIC ENVIRONMENTS

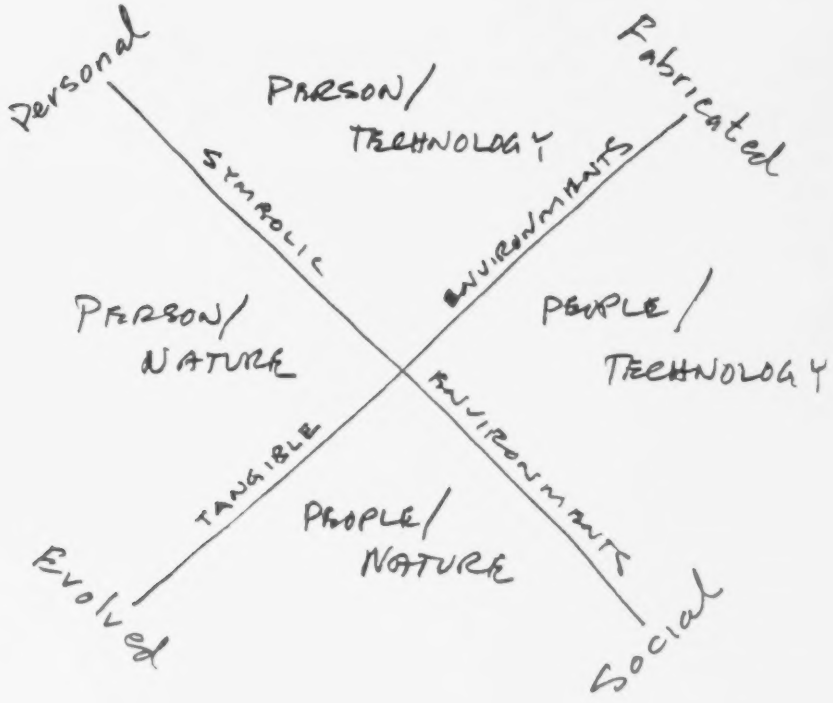


(6) Environments, as depicted above, do not occur in isolation and thus may be perceived throgh their various **INTERFACES.** In an anthropocentric interpretation, special attention may be given to interfaces of humankind with various environments.

(6a) One such depiction -- SYMBOLIC/TANGIBLE environmental interface -- derives from FORM of environment:

SYMBOLIC ENVIRONMENTS	TANGIBLE ENVIRONMENTS: Evolved	TANGIBLE ENVIRONMENTS: Fabricated
Personal	**PERSON/NATURE**	**PERSON/TECHNOLOGY**
Social	**PEOPLE/NATURE**	**PEOPLE/TECHNOLOGY**

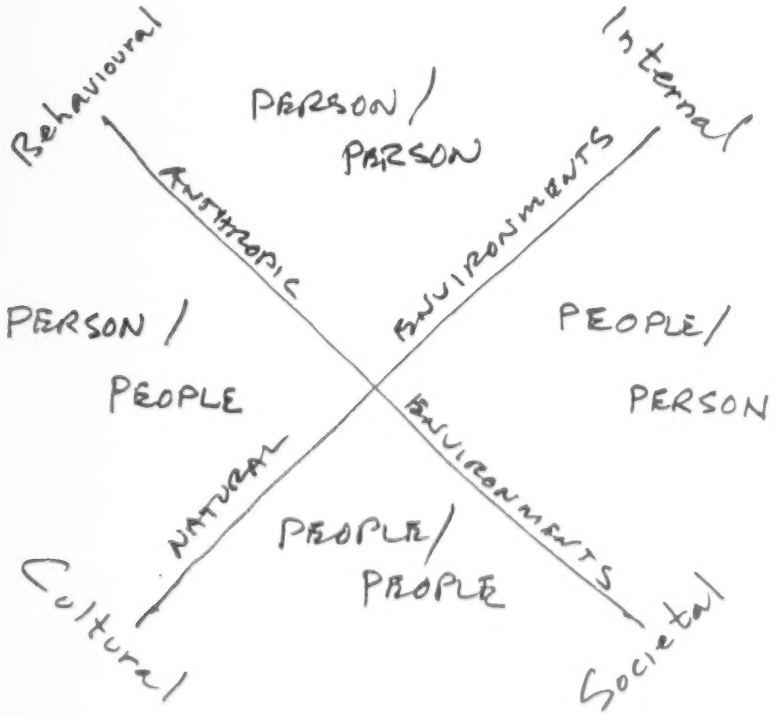
Figure 6. SYMBOLIC/TANGIBLE ENVIRONMENTAL INTERFACE.



(6b) Another depiction -- ANTHROPIC/NATURAL environmental interface -- derives from SOURCE of environment and, in the aspect shown below, reflects anthropic humankind in interaction with natural humankind:

NATURAL ENVIRONMENTS	ANTHROPIC ENVIRONMENTS: Behavioural	ANTHROPIC ENVIRONMENTS: Social
Internal	PERSON/PERSON	PEOPLE/PERSON
Cultural	PERSON/PEOPLE	PEOPLE/PEOPLE

Figure 7. ANTHROPIC/NATURAL ENVIRONMENTAL INTERFACE.



(6c) Similar depictions result from relating ESSENCE of environment to KIND of environment and then perceiving the humankind/environment interfaces:

	KIND OF ENVIRONMENT			
	TANGIBLE		SYMBOLIC	
	1. Evolved	2. Fabricated	3. Personal	4. Social
Intrinsic essence	NATURE/ PERSON	PERSON/ TECHNOLOGY	PERSON/ PERSON	PERSON/ PEOPLE
Superimposed essence	PEOPLE/ NATURE	TECHNOLOGY/ PEOPLE	PEOPLE/ PERSON	PEOPLE/ PEOPLE

Figure 8a.

HUMANKIND/TANGIBLE ENVIRNOMENT INTERFACE.

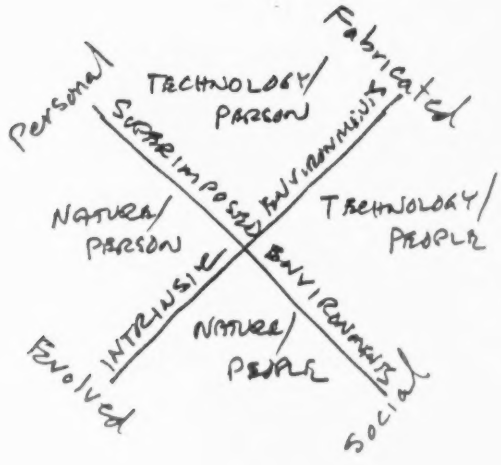
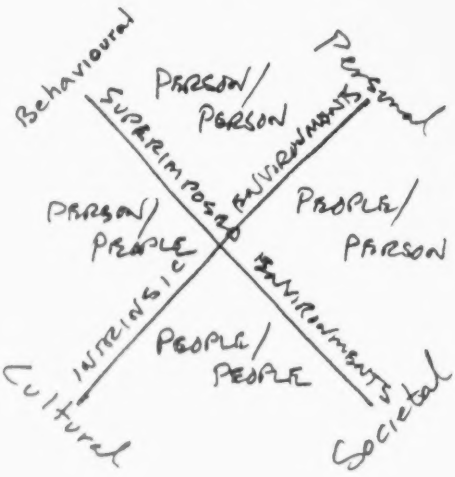


Figure 8b.

HUMANKIND/SYMBOLIC ENVIRONMENT INTERFACE.



(7) The concept of 'environment' may be seen not only to mean the phenomena which are studied, but also to mean an inherent way of studying -- **ENVIRONMENTAL THINKING.** The notion, relatively undeveloped, is that subject matter has an intrinsic form of thought as well as content, and that the environmental context of substantive concerns may be used to determine form of thought (environmental 'filter').

FORM OF ENVIRONMENTAL THINKING
(Filters of environmental thought)

SUBSTANTIVE CONCERNS			I Evolved	II Fabricated	III Personal	IV Social
TANGIBLE	1. Evolved	Pristine				
		Modified				
	2. Fabricated	Adapted				
		Artificial				
SYMBOLIC	3. Personal	Internal				
		Behavioural				
	4. Social	Cultural				
		Societal				

. . . . ?

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ESSAYS INTO ENVIRONMENTAL STUDIES

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FESKIT

Foray 5

CONTEXTS OF ENVIRONMENTAL STUDY

Implications of the 'Program Quadrants'

1987-4

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CONTEXTS OF ENVIRONMENTAL STUDY

Implications of the 'Program Quadrants'

In developing the individual Plan of Study, the student needs to identify the approach to be taken for the program. For this purpose, it is not enough that each of us has an intrinsic sub-conscious approach to the world. The process of developing and implementing the Plan of Study demands a self-conscious explication and appraisal of that approach, with the objective of modifying it if and when necessary.

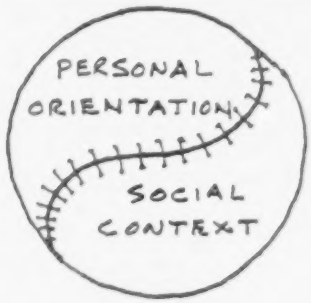
The approach that is taken by the student to a 'field' of study will be determined by two factors -- the external influences that act on the approach to study (Social Context) and the internal origins of the approach to study (Personal Orientation). This foray is to explore some of the ways that Axes II and III of the FES Curriculum Model reveal **PROGRAM QUADRANTS**. The Quadrants reflect significantly different program perspectives that result from the interactions in and between the influences of Social Context (Externity) and Personal Orientation (Self).

The nature of the connection between Personal Orientation and Social Context is critical for self-directed learning; indeed, it is critical for all aspects of education -- a superficial connection will not facilitate learning. In environmental study the connection is intrinsic. Program perspective, as reflected in the Program Quadrants, is characterized by continuing interaction of Self and Externity, of inner-direction and outer-direction, of instruction and experience.

The concept of Program Quadrant derives from a unified (but not unitary) principle of program perspective. Like visual perspective, program perspective results from two separate but connected elements. In visual perspective, these are the eye and the brain; in program perspective, these are Externity and Self. For the individual student, the connecting 'glue' is reflection and internalization.

It is also noteworthy that, in optical perspective, opening both eyes for stereoscopic vision gives depth of perception. The counterpart in program perspective, for providing depth of vision and comprehension, is keeping an open mind. Drawing premature conclusions is a common cause of confusion in the understanding of ideas. To get the 'full picture' it is necessary to withhold judgement and even, at times, to suspend disbelief.

Figure 1. THE RELATION BETWEEN 'SELF' AND 'EXTERNITY'.



In both visual perspective and program perspective, the potential manifestations of the relationship between the two elements are infinite. In understanding visual perspective, it has been found to be useful, for practical purposes, to work with a limited number of such manifestations; for example, perspective projection using one, two, or three vanishing points. In understanding program perspective, we find it useful, for practical purposes, to identify four manifestations:

A - Praxis in Intervention,

B - Praxis in Observation,

C - Theory in Intervention,

D - Theory in Observation.

Each of these labels may be understood in two ways:

A. praxis in intervention -- that is, the carrying out of intervention (overlap with quadrant B); and
intervention in praxis -- that is, the influencing of practices of intervention (overlap with quadrant C).[1]

B. praxis in observation -- that is, the carrying out of observation (overlap with quadrant A); and
observation in praxis -- that is, the exploring of practices of observation (overlap with quadrant D).

C. theory in intervention -- that is, the conceptualizing of intervention (overlap with quadrant D); and
intervention in theory -- that is, the influencing of principles of intervention (overlap with quadrant A).

D. theory in observation -- that is, the conceptualizing of observation (overlap with quadrant C); and
observation in theory -- that is, the exploring of principles of observation (overlap with quadrant B).[2]

The origins of these four rather different program perspectives, or frames of mind, lie in the underlying phenomena of Social Context (Axis II of the Model) and Personal Orientation (Axis III of the Model).

---

[1]The distinction between 'praxis' and 'practice' is subtle, but significant. 'Practice' is taken to be simply descriptive of the application of knowledge -- the doing. 'Praxis' is taken to mean the deeper comprehension of that which informs the application of knowledge -- the prior understanding of the doing.

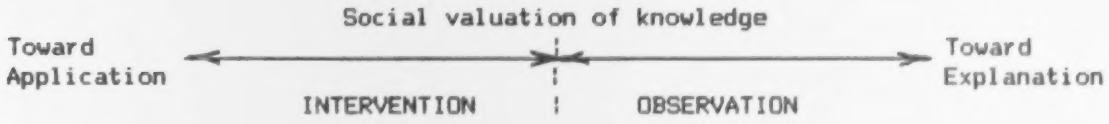
[2]Note that the same words used in describing the Program Quadrants may, in a different setting, refer to the subject matter or object of study, rather than to the context or perspective of study. Content can be distinguished from context by observing the use of the prepositions 'of' and 'in'. For example: "practices of intervention" would be an Area of Concentration (the subject), while "theory in observation" would be a Program Quadrant (the perspective).

SOCIAL CONTEXT (Axis II)

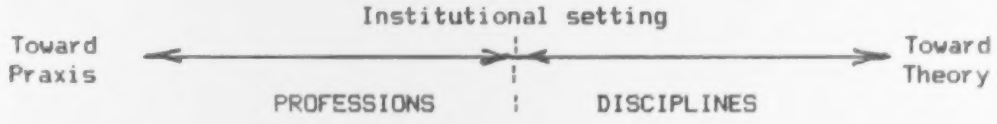
The principal social influences on the individual program of study operate through societal conventions and arrangements for studying, exploring and dealing with the world. These influences may be seen in two primary aspects:

1. Societal perspectives of the purpose, or value, of knowledge;
2. Institutional settings for observing and intervening.

Knowledge is perceived by society to have value -- in itself and for the understanding of phenomena, and for its utility in affecting phenomena:

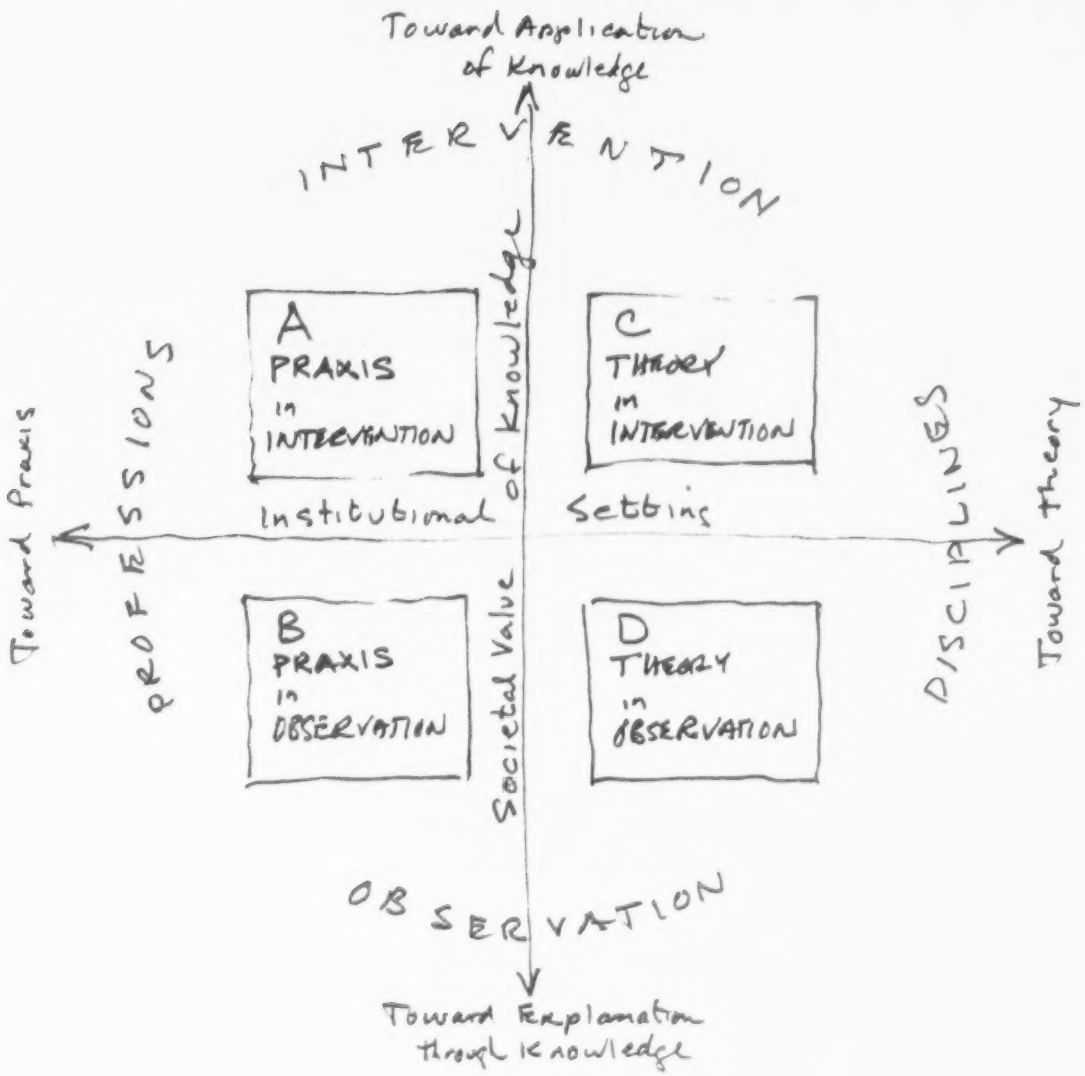


Society creates institutions both for the discovery of knowledge and for its application. We may not like these institutions and we may wish to reform them, but they exist and must be acknowledged in the framing of a program of study:



The particular overlay of these social influences on the program will in part determine the characteristics of the individual approach to study. Taken together, the two aspects of social influences delineate the Program Quadrants as they reflect dominant social contexts within which environments may be studied.

Figure 2. THE PROGRAM QUADRANTS.



Society identifies and classifies the actors in its affairs in various ways. One of these ways is to distinguish those whom society blesses to be developers of knowledge from those whom it blesses to be appliers of knowledge. On the one hand are those who are known to pursue search, research, scholarship; on the other hand are those who are known to pursue trades, crafts, professions.

Society makes a variety of institutional arrangements for the pursuit of the different categories. These arrangements differ widely in their particularities, but they may be usefully perceived and understood through an essential quality -- the way that society legitimates the activity. In the most general situation, an activity is legitimated simply by not being prevented by social convention or by formal societal edict. At the other extreme, society not only dictates what the activity shall be but also determines who shall be allowed to pursue it. Between the extremes, society applies combinations of convention and legislative edict that describe what are commonly known as disciplines and professions.

Disciplinarity

Disciplinarity is determined primarily by social convention. In this sense, the disciplines are what they are generally 'understood' to be, and most persons, when pressed, can make a list of what they consider to be disciplines. These perceptions are manifested institutionally in a variety of ways -- from formal knowledge organizations such as universities and scholarly societies, through less structured but identifiable groupings devoted to discovery and dissemination of knowledge, to what might be termed 'subversive' interests devoted to the pursuit of knowledge. At the formal end of the spectrum society, though governments, may intervene directly in the institutional arrangements for research and education, establishing public institutions and controlling private ones for the purpose, and, in the process, influencing if not dictating content and approach. At the 'subversive' end of the spectrum, society may impose constraints and limitations on the dissemination if not the pursuit of knowledge.

In academia, there are strong and persistent conventions for identifying the disciplines and defining boundaries between them, in some cases going as far as to constrain those associated with one discipline from concerning themselves with subject matter perceived to 'belong' to another discipline.

Whatever the particular institutional arrangements, the following attributes are widely accepted as characterizing a discipline:

- o like-minded practitioners functioning in their professional lives,
- o sharing general assumptions about reality,
- o having a mutually accepted view of the nature of knowledge,
- o reflected in a body of commonly accepted knowledge,
- o developed through established grounds or rules of enquiry, debate, and dissemination.

Where there are significant differences between disciplines, it is useful to identify those differences as they are reflected in the subject matters of concern and the manner in which understanding is approached. Such insights will help to evaluate the relevance of a particular approach for the individual program of study.

Moreover, when such differences are understood, some meaning is given to the word 'interdisciplinary' -- a word more often used to impress than to inform. If 'inter' means "together, mutually, or reciprocally" [Collins], an interdisciplinary approach implies a relationship that brings disciplines together in ways and with outcomes that should be substantially different from a 'multidisciplinary' approach to the same phenomena, if 'multi' simply means "more than one" [Collins]. Both are potentially useful approaches, but they are not the same.

Beyond interdisciplinarity, in which the contributing disciplines are still identifiable, lies the concept of 'transdisciplinarity'. If 'trans' means "changing thoroughly" [Collins], the new approach should be fundamentally different from the original disciplines, which should be difficult if not impossible to identify individually in the transformed approach.

Professionalism

Professionalism and disciplinarity have much in common, but there are important institutional differences. What distinguishes the two in the first instance is underlying purpose. The essential purpose of disciplines is to explain; the essential purpose of professions is to intervene. That basic

difference gives rise to significant differences in the manner and extent to which society gives its blessings to professions as compared to disciplines.

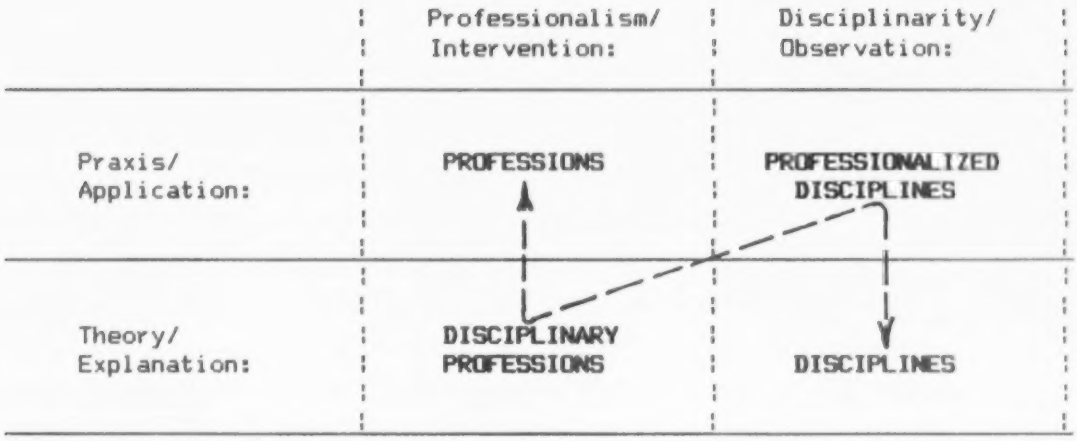
When society perceives that it is in the 'public interest' to control a particular form of social intervention, it may impose a variety of measures, including restricting the title of the form of intervention, determining the nature of acceptable intervention, and identifying those persons who may engage in the intervention.

Professionalism occurs when society, often through legislation, empowers a particular group to exercise control on behalf of society over a particular form of intervention. At the extreme, a profession may be empowered with full control over who may be a member of the profession and over what those members may do in the name of the profession. There are many stages short of the extreme, and the newspapers daily report one group or another in the process of 'professionalizing' their endeavours.

It is argued that formal societal blessing is not enough in itself to qualify an activity as truly professional, but that all of the following characteristics must be fulfilled in one way or another:

- specialized education for the application of skills based on theoretical knowledge,
- commitment of the members to the oocupation,
- service orientation, with members acting in an agency relationship,
- obligation to a perceived public interest,
- individual and collective responsibility for the actions of members,
- code of ethics governing the professional behaviour of the members,
- self-government of the profession.

An understanding of the implications and ramifications of professionalism and disciplinarity, particularly in relation to anticipated career paths, will assist in the formulation of relevant approaches to the individual program of study.



In formulating the individual approach to the program of study, the student needs to be aware of any differences between personal perception of the Social Context 'chosen' for the purpose of the program and the 'reality' of the Social Context as defined by societal conventions. There may or may not be a coincidence between personal perception and socially constructed reality, and it is not implied by the Model that the individual student will 'fit' easily in a Program Quadrant as defined by Social Context. Moreover, it is not expected that program perspective will remain static as the student's program progresses and further knowledge and insights are gained. But the evolution of program perspective should not be confused with the adoption of different attitudes and topical learning styles in relation to particular learning experiences.[a] For the student, emphasis amongst the parameters of program perspective will vary over time, but the dominant characteristics of the overall individual approach to the Plan of Study will continue to be reflected by the Program Quadrant.

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[a]See Foray #6, Using the Logistical Framework.

PERSONAL ORIENTATION (Axis III)

Personal Orientation, or Self, is the second element that establishes the context of the individual program, in interactive function with Social Context. The complex interconnections of biological 'self' and social 'self' result in metaphysical Self, the outward manifestation of which is Personal Orientation.

A key factor for environmental study is that each of us has a predilection for a particular personal style or way of learning. An awareness of this personal style and its implications for self-directed learning is important for the development of the individual Plan of Study.

Personal Orientation may be seen to have four aspects, whether consciously identified or operating subliminally:

(1) Personal motivation or intent behind study/exploration;
(2) The particular way that the student brings into focus intellectual attitude or approach to study;
(3) The manner of thinking, or cognitive style, that the student has adopted for study/exploration;
(4) The procedure or mode that the student generally uses to carry out study/exploration.

Each of these aspects may be characterized in relation to the perspectives of the PROGRAM QUADRANTS, as follows:

Personal Orientation (1)

Prime MOTIVATION or intent may be derived from two characteristics:

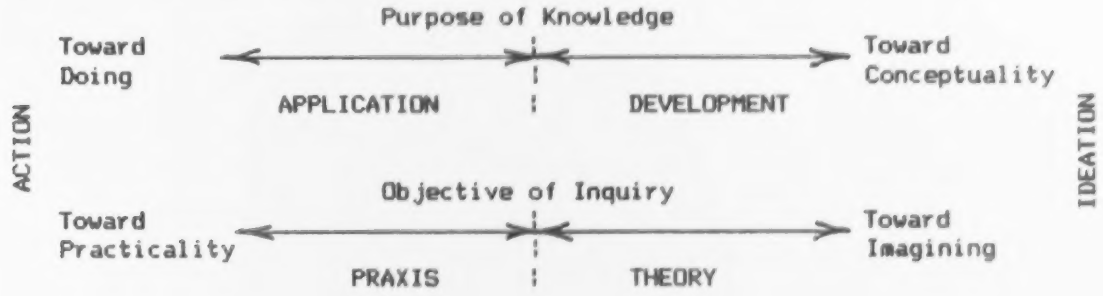
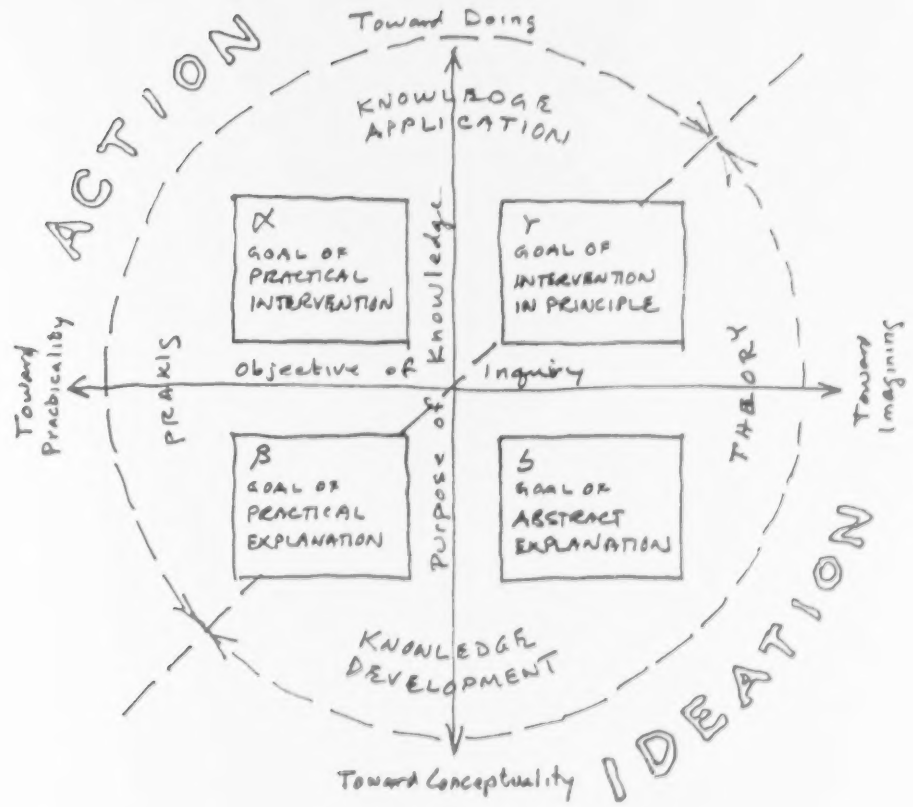


Figure 3. PERSONAL MOTIVATION.



Personal Orientation (2)

The main MEANS OF FOCUSING the approach to study may be derived from two further personal aspects:

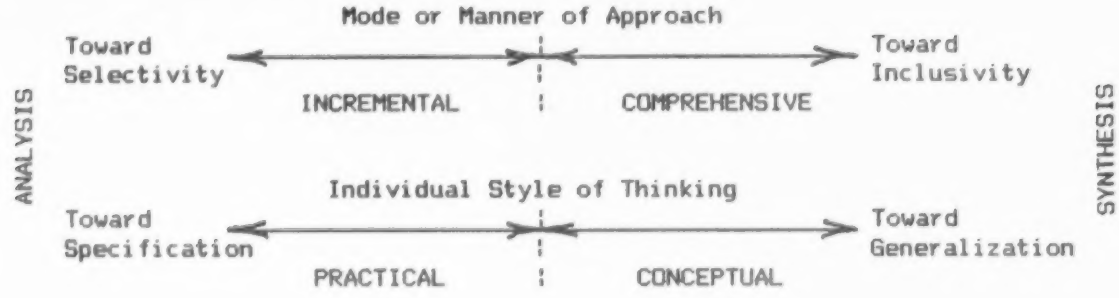
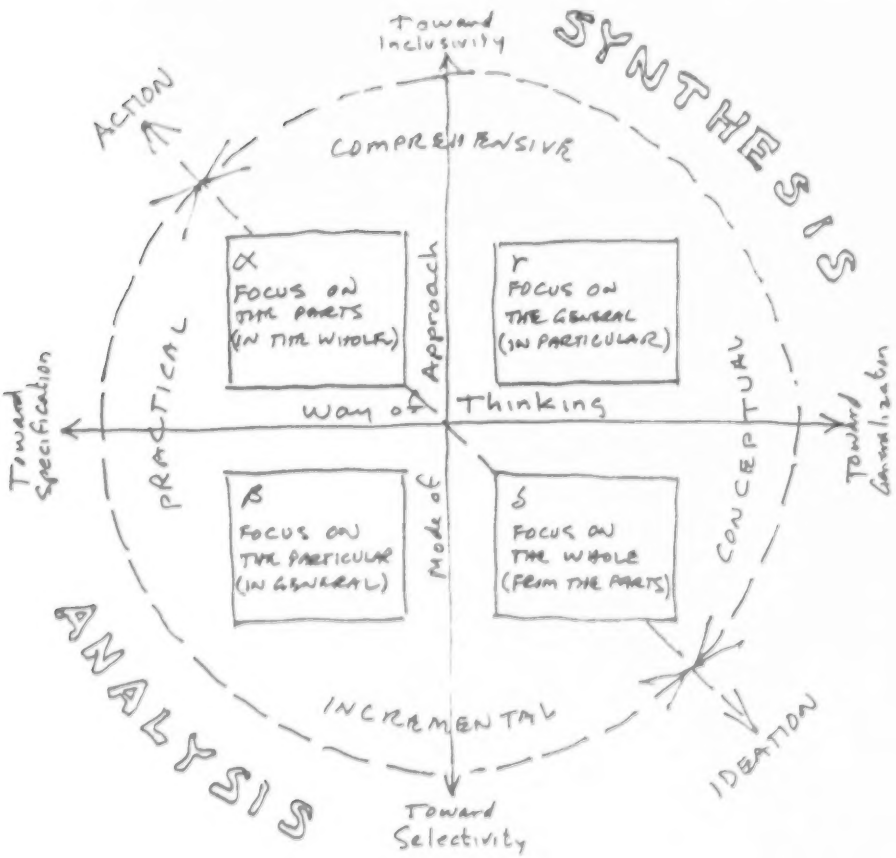


Figure 4. PERSONAL MEANS OF FOCUS.



Personal Orientation (3)

Relating personal purpose of study to way of thinking gives a depiction of major personal COGNITIVE STYLE:

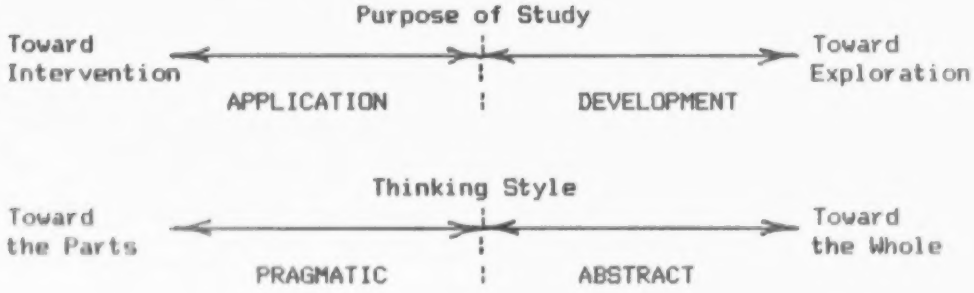
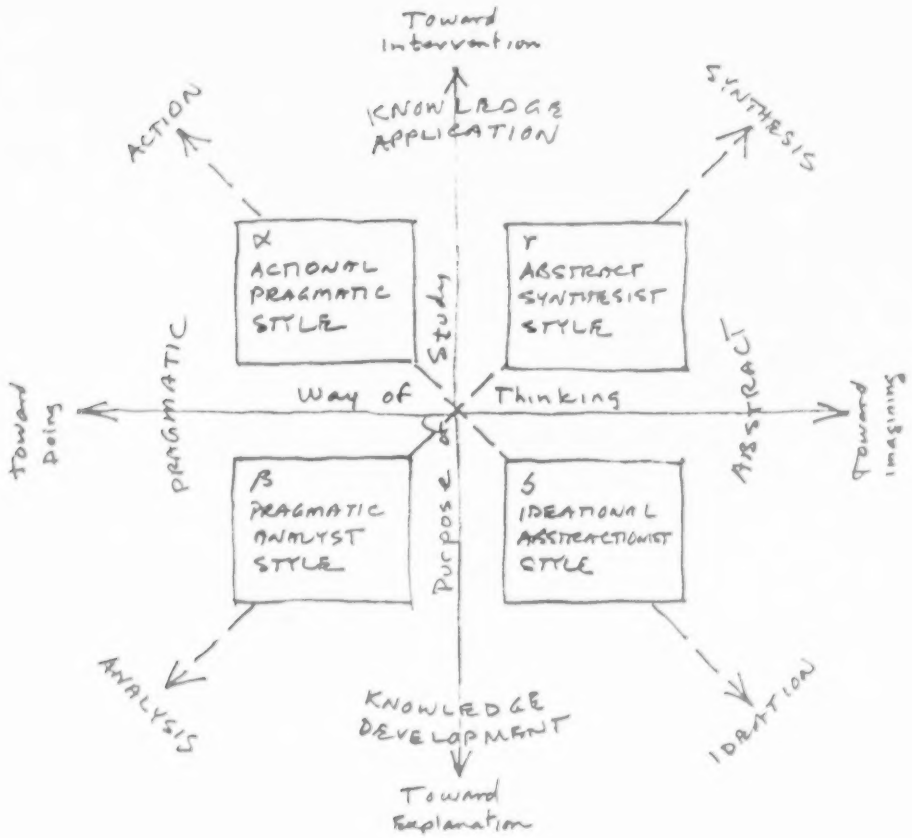


Figure 5. PERSONAL THINKING STYLE.



Personal Orientation (4)

Relating personal purpose of study to personal manner of exploration gives a depiction of principal MODE OF STUDY:

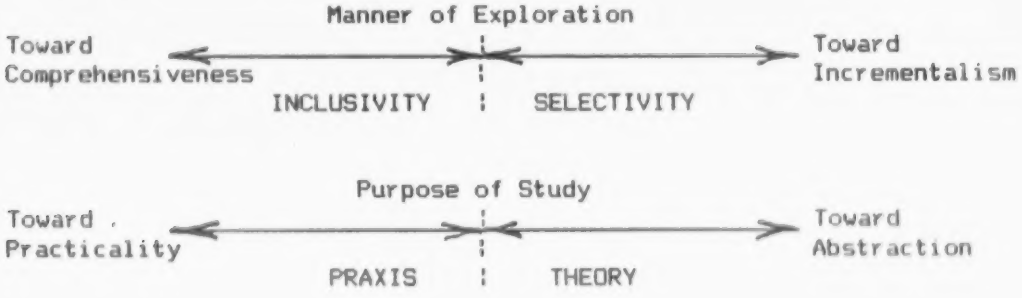
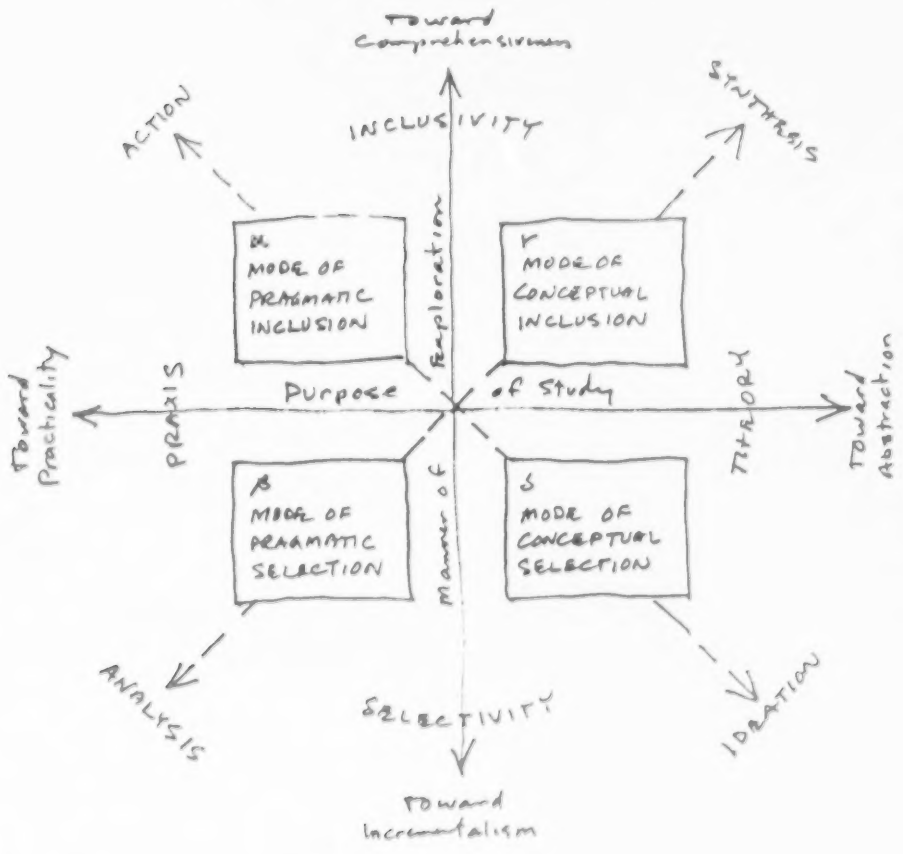


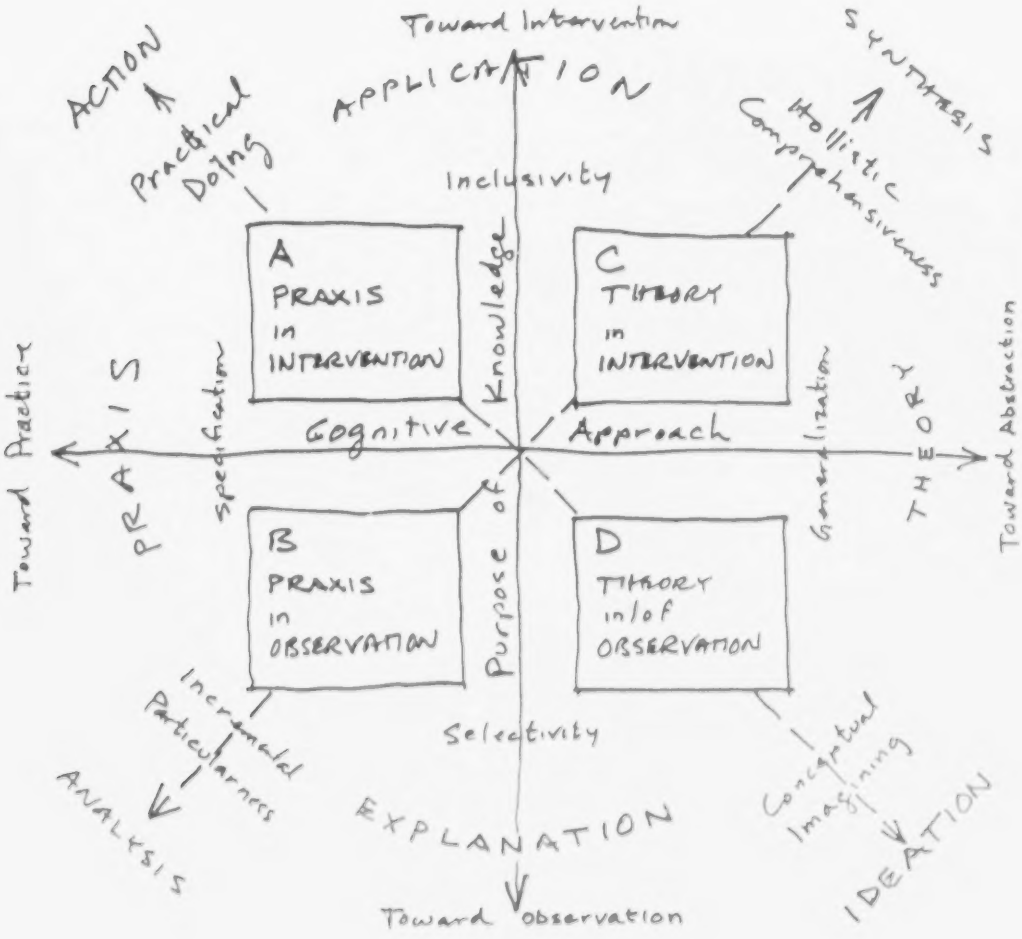
Figure 6. PERSONAL MODE OF STUDY.



Personal Orientation (Summary)

The PROGRAM QUADRANTS, as derived from Personal Orientation (Axis III), reflect the dominant overall perspective brought by the individual student to study in the MES program. Determined in this way, the Quadrants identify four rather different types of 'learners', reflecting the characteristics illustrated in the preceding sections.

Figure 7. PERSONAL ORIENTATION.



Quadrant A - Praxis in Intervention/Intervention in Praxis:

Type A learners emphasize application of knowledge in 'real world' situations, being motivated by practical intervention. The style of thinking is actional pragmatist; the focus of attenton is on the particular situation or problem; the mode of investigation is the pragmatic inclusion of information as it becomes relevant.

In sharing with type B learners a concern for the particular, type A learners are concerned with specifying the particular within the larger context of the situation being addressed. In sharing with type C learners a concern for the whole, type A learners are concerned more with defining the whole by identifying and including the relevant parts.

The inclination of type A learners is to proceed by experimentation, relying heavily on experience and intuition, and depending more often upon experts for specialized information than on their own analytic expertise. If the facts don't fit the theory, it is the theory that is likely to be discarded.

The strength of this style of learning is in practical doing -- in getting things done, carrying out plans and projects, and moving on to new challenges. This style is particularly suited to situations where immediate circumstances are changing rapidly.

Quadrant B - Praxis in Observation/Observation in Praxis:

Type B learners emphasize observation of 'real world' phenomena, being motivated by practical explanation. The style of thinking is pragmatic analyst; the focus of attention is generally on particular elements of a situation or phenomenon; the mode of investigation is the pragmatic selection of the elements to be observed.

In sharing with type A learners a concern for specification, type B learners tend to be concerned less with the general situation than with the specific elements chosen for observation. In sharing with type D learners a concern

for selectivity, type B learners are more interested in the practical relevance of the selection than in its theoretical implications.

The inclination of type B learners is to proceed through deductive reasoning and analytical thinking to focus on specific phenomena or problems. The preference is toward technical, rather than social, tasks.

The strength of this style of learning is in incremental particularness, the practical application of ideas having specific relevance in a given situation. This style is particularly appropriate where there is a single 'correct' answer to a question, or a single 'best' solution to a problem.

Quadrant C - Theory in Intervention/Intervention in Theory:

Type C learners emphasize the theoretical application of knowledge to 'real world' situations, being motivated by conceptualization of intervention and the influencing of principles. The style of thinking is abstract synthesist; the focus of attention tends to be the total situation; the mode of investigation is by the inclusion of information as it serves the conceptual framework.

In sharing with type A learners a concern for inclusivity, type C learners are more interested in the way the element contributes to the larger whole than with the element itself. In sharing with type D learners a concern for generalization, type C learners are concerned with the way the generalization derives from the elements.

Type C learners tend to proceed through inductive reasoning toward synthesis, relying heavily on imagination and conceptual thinking, constantly on the alert for the 'creative leap'.

The strength of this style is in holistic comprehensiveness, reflecting the capacity to view 'real world' situations from different perspectives and to perceive related meanings in disparate information. This style is particularly suited to situations calling for the development of alternative approaches.

Quadrant D - Theory in Observation/Observation in Theory:

Type D learners emphasize the development of theory for its own sake, being motivated by abstract explanation. The style of thinking is ideational abstractionist; the focus of attention is on the whole phenomenon as it derives from the parts; the mode of investigation is the conceptual selection of information as it is relevant for theory.

In sharing with type B learners a concern for selectivity, type D learners are concerned more with the theoretical relevance of information than with its practical import. In sharing with type C learners a concern for generalization, type D learners are concerned more with consistent and integrated theory than with the implications for intervention.

The inclination of type D learners is to proceed by abstract conceptualization to develop theoretical models which are tested by internal consistency and capacity to explain phenomena. But if the facts don't fit the theory, it is the facts that are more likely to be doubted.

The strength of this style of learning is in conceptual imagining, the conjuring up from disparate information integrated explanatory models of abstract and concrete phenomena. This style is particularly suited to situations where problems are not pressing for immediate solution.[4]

---

[4]The assessment of learning styles does not in any sense mean that one or another way of thinking is intrinsically 'better' than the others, although in particular circumstances one of the styles may be considered to be more relevant and appropriate than the others. However, a negative apprehension of learning style can and, in the competitive mode, unfortunately often does, lead to characterization of the ways of thinking in pejorative terms -- type A learners are seen as arrogant SOB's imposing their will on others; type B learners are seen as nit-picking pedants impeding 'progress'; type C learners are seen as inveterate trouble-makers bent on being difficult; type D learners are seen as weirdo screwballs out of touch with 'reality'.

It is unlikely that the individual student will fit neatly and completely into a Program Quadrant as determined by Personal Orientation, either at a given moment or in the course of time. Given the diversity of situations in which we find ourselves, it is not a good idea to rely on one style of learning to the exclusion of the others; and the underlying perspective may change in the light of new experiences and understandings.[3] Nevertheless, even with the adoption of quite different approaches to particular situations, the Program Quadrant will continue to reflect the underlying program perspective. It is important to distinguish fundamental changes in perspective from the adoption of a particular style of learning to respond to a particular situation -- such topical responses would not represent a change of Program Quadrant.

Should there occur fundamental changes in program perspective as determined by Personal Orientation, one consequence is likely to be the identification of a different Program Quadrant for the continued pursuit of the program of study. In such an event, the student will need to rethink and redefine the individual Plan of Study.

Both for the enhancement of self-directed learning and for the purposes of the faculty in understanding and supporting the individual student in the pursuit of the degree program, it is important to appreciate clearly the underlying characteristics of the individual approach to exploration and study as determined by Personal Orientation. To this end, the student needs to be as accurate as possible in the introspection and self-examination that are required to identify the relevant Program Quadrant for the purpose of the individual Plan of Study.

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[3]Also see Foray #6, Using the Logistical Framework.

MEANING OF THE PROGRAM QUADRANTS (Axes II & III)

The PROGRAM QUADRANTS represent a general characterization of the different perspectives for study -- the combination of Social Context, or Externity (Figure 2) and Personal Orientation, or Self (Figure 7) that conditions the program of study for the individual student. Taken together, the four Quadrants represent the overall perspective of the Faculty (Figure 8). The particular Quadrant represents the dominant perspective taken by the student for the purpose of the MES program, as reflected in the individual Plan of Study. To be 'in' a Quadrant means to bring to the program of study a FRAME OF MIND determined by Social Context and Personal Orientation.

	QUADRANT A	QUADRANT B	QUADRANT C	QUADRANT D
	PRAXIS in INTERVENTION	PRAXIS in OBSERVATION	THEORY in INTERVENTION	THEORY in OBSERVATION
SOCIAL CONTEXT: (Figure 2)				
Institutional setting	Practice	Practice	Theory	Theory
Societal value of knowledge	Application	Explanation	Application	Explanation
PERSONAL ORIENTATION: (Figure 7)				
Prime intent/ motivation (Figure 3)	Practical intervention	Practical explanation	Intervention in principle	Abstract explanation
Main focus of approach (Figure 4)	The parts, in the whole	The particular, in general	The general, in particular	The whole, from the parts
Major style of thinking (Figure 5)	Actional pragmatist	Pragmatic analyst	Abstract synthesist	Ideational abstractionist
Principal mode of exploration (Figure 6)	Pragmatic inclusion	Pragmatic selection	Conceptual inclusion	Conceptual selection

Figure 8. CONTEXTUAL FRAMEWORK FOR THE PLAN OF STUDY.

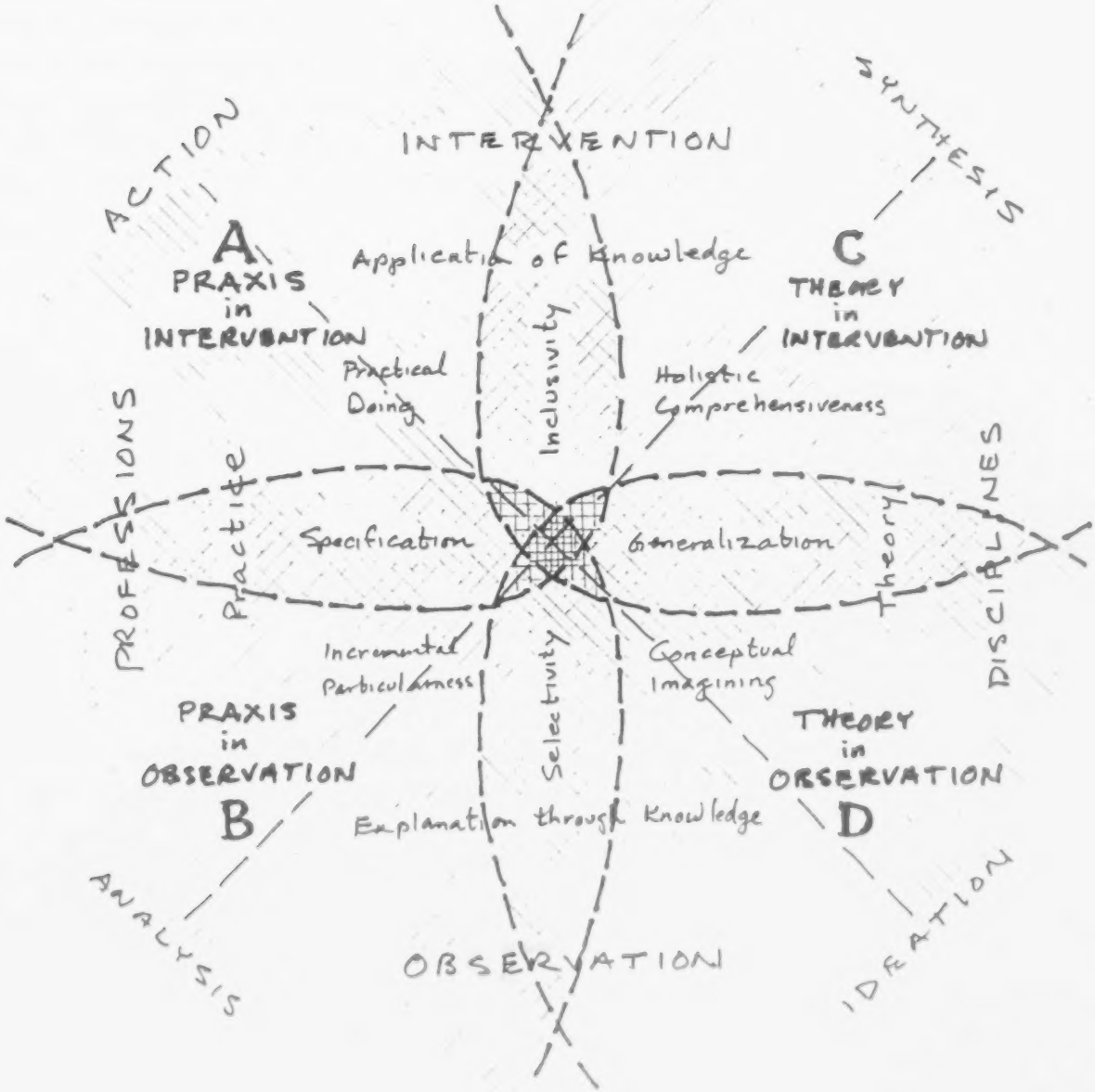


Figure 9. ILLUSTRATING THE OVERLAP OF ALL FOUR PROGRAM QUADRANTS.
(The 'core' approach of FES)

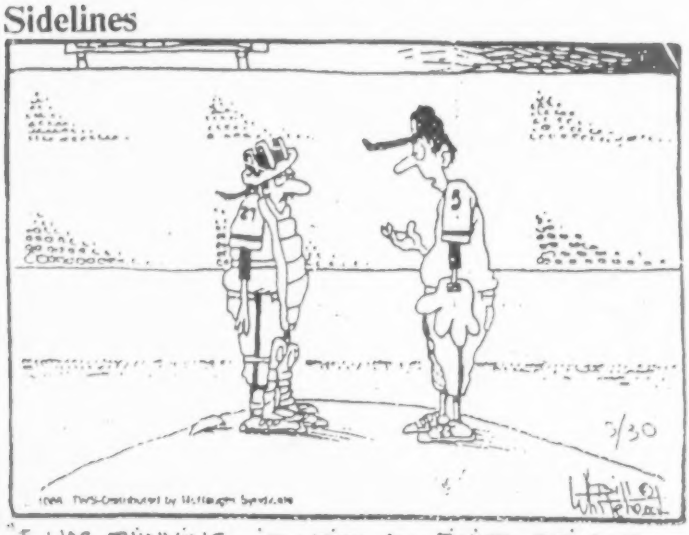
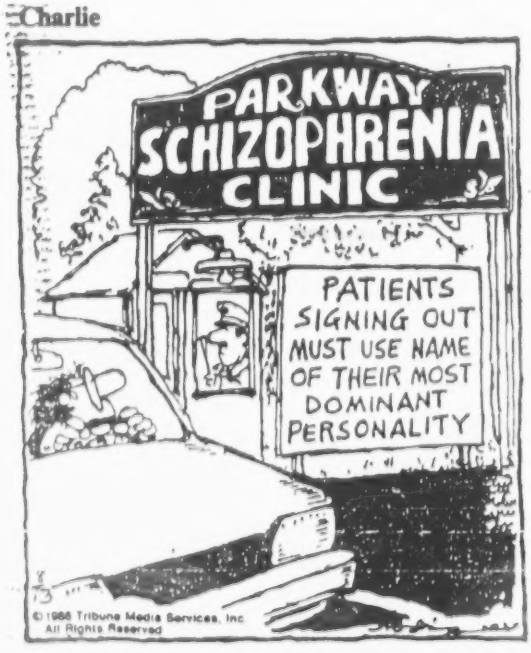


Figure 10. REFLECTING THE INSTITUTIONAL REASONS FOR THE IDENTIFICATION OF PROGRAM QUADRANT.


Charlie
PARKWAY SCHIZOPHRENIA CLINIC
PATIENTS SIGNING OUT MUST USE NAME OF THEIR MOST DOMINANT PERSONALITY
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York University
Faculty of Environmental Studies

ESSAYS INTO ENVIRONMENTAL STUDIES

Being Interpretations and Amplifications
of the

FES CURRICULUM MODEL

FESKIT

Foray 6

USING THE LOGISTICAL FRAMEWORK

1987-4

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USING THE LOGISTICAL FRAMEWORK

Where there's a will, there's a wont

The FES Curriculum Model has three principal purposes. First, it is the general pedagogocal framework within which individual programs of graduate study are formulated, developed and implemented in the Faculty. Second, within the larger setting of the university, it establishes the particular institutional context for the conduct of the academic affairs of the Faculty. Third, it provides a basis for connecting the Faculty with other parts of the post-secondary educational system and with relevant parts of the 'other' real world.

These purposes are served in general by the three fundamental elements of the Model: Substantive Concerns (Axis i), Social Context (Axis ii), Personal Orientation (Axis iii). The purposes are served in particular by the institutional superstructure formed by the three axes of the Logistical Framework: Area of Concentration (Axis iv), Learning Resources (Axis v), Learning Strategy (Axis vi).

Figure 1. THE AXES OF THE LOGISTICAL FRAMEWORK.

The axes of the Logistical Framework do not come into being on their own, nor do they stand in isolation. Each axis bears a relationship to the underlying influences that have been identified as determining the essential nature of the individual program of study. The Area of Concentration (Axis iv) emanates out of the Substantive Concerns (Axis i) that are identified by the student as relevant for the individual program. The Learning Resources (Axis v) that are available to the student are inherent in the Social Context (Axis ii) in which the learning takes place. The Learning Strategy (Axis vi) adopted by the student will be essentially conditioned by the student's Personal Orientation (Axis iii).

Figure 2. RELATION OF LOGISTICAL AND UNDERLYING ELEMENTS.

There will be times in any program of study when the activities of the moment seem to have become detached and without purpose. It is helpful in such situations to recall the foundational basis that underlies the Logistical Framework and to view current activities in the perspective of that broader context.

This foray explores some of the ramifications of the Logistical Framework, with emphasis placed on the point of view of the student using the Model for the formulation, development and pursuit of the individual Plan of Study.

Figure 3. ESSENCE OF THE LOGISTICAL FRAMEWORK.

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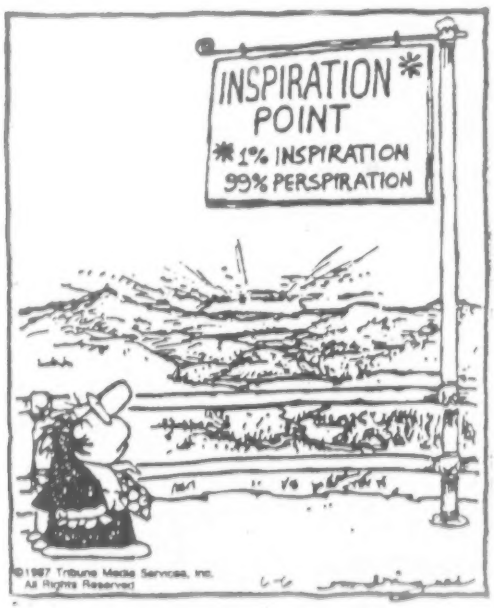

THE AREA OF CONCENTRATION (Axis IV)

A necessary element of the individual Plan of Study is the definition of the subject matter to be explored, given that the content of Environmental Stuies is not predetermined and prescribed by the Faculty.

Commonly, students will have a much wider range of substantive concerns than may be considered to be directly relevant for Environmental Studies. The task for the individual student is, therefore, to examine the personal array of substantive concerns and identify that set of relevant concerns that constitute a manageable 'Field' of Environmental Studies within which the student may reasonably expect to pursue graduate work. This is an individual exercise that results in the identification of a personal Field of study.

For the particular purpose of the MES degree program, attention must further be focused on a specified 'Area of Concentration' -- the kernel of the Field of study -- that the student proposes to 'master' during the time available for the MES degree program. There are three ingredients in the definition of the Area of Concentration: (1) delineation of the extent and coverage and depth of penetration of the subject matter; (2) analysis of the content and identification of the constituent elements, or 'Components' of the Area of Concentration; (3) depiction of the Area of Concentration as a consistent and integrated whole.

A critical variable in the delineation of subject matter coverage and penetration is the extent to which the Area of Concentration coincides with the individual Field of substantive concerns. It is probable that the subject matter of the Field of interest will be broader in extent than the particular concerns represented by the Area of Concentration.[1] It is also probable

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[1]It is difficult to perceive how general interests could be *less* in extent than particular interests. If they were, the implications for an institutional program of study are not readily comprehended -- it would probably mean that, at the least, such a person would be more suited to a highly specialized and segregated institutional setting.

that the depth of penetration of subject matter will be greater for the Area of Concentration than for the Field as a whole. It may happen that the Area of Concentration and the Field coincide exactly. But if the Area of Concentration is too small a sector of the Field, it will tend to lose relevance; if it is too large a sector, it may become unmanageable as the basis for a masters degree program of limited duration (particularly if the Field is already broadly defined).[2]

Within the Area of Concentration, its constituent elements, or Components, are to be specified and analysed for the purpose of study. These may be readily identified, or it may be quite difficult to perceive where one component leaves off and another begins. If the original definition of the Area of Concentration has been perceived from the accumulation of various elements of substantive concern, then the identification of the Components will be relatively straightforward. If, however, the Area of Concentration was originally perceived as a single integrated whole, it may not be so easy to break it down into its constituent Components.

There are different ways of visualizing the Components of the Area of Concentration. At one extreme, the Area of Concentration may be thought to consist of a single element of subject matter. If this comes from an extremely narrow definition of the Area of Concentration, the relevance for the MES degree program would need to be carefully scrutinized. If, however, the perception of a single Component comes from visualizing the components as intrinsically and inextricably overlapped, the problem becomes definitional, perhaps resolved by focusing on the nature of the core characteristics of potential components rather than on the boundary condition between them. At another extreme, the Area of Concentration may be defined by a very large number of Components of relatively equal scope and depth. At this extreme, it may be difficult to perceive the connections among the Components and their significance in contributing to the overall Area of Concentration.

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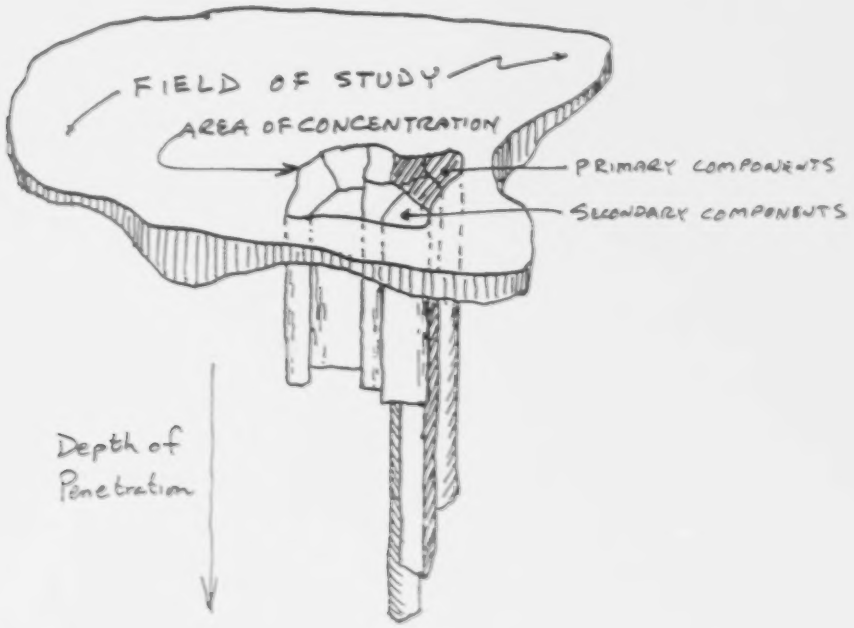
[2]We cite an admonition drawn from anthropic environment: "Moderation is the silken string running through the pearl-chain of all virtues." [Bp. Hall]

Between the extremes, the Components may vary in scope and depth; some Components may be perceived to overlap while others are singularly defined; some components may be selected to perform a prime role in defining the Area of Concentration, with others identified as secondary support elements; it is possible (but perhaps unlikely) that part of the Area of Concentration is left unspecified by Components, but still defined as being within the Area of Concentration (becoming a sort of 'residual' Component). In defining the Area of Concentration by means of its Components, none of the Components will extend beyond the boundary of the Area of Concentration; if one were to do so, then the edge of the Area of Concentration would thereby be automatically adjusted and redefined.

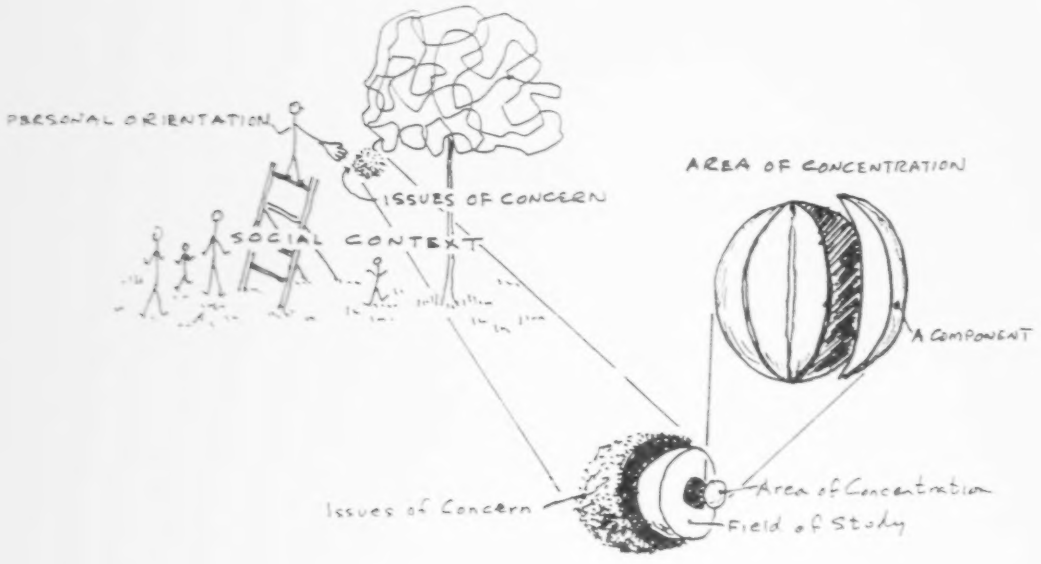
Figure 4. RELATION OF FIELD, AREA OF CONCENTRATION AND COMPONENTS.



The Area of Concentration having been defined by means of its Components, the Components are now to be reintegrated and synthesized in a holistic view of the Area of Concentration, consolidating the relation of the Area of Concentration to the Field of substantive concerns. If, at the outset, the Area of Concentration was defined as a whole, this new synthesis will tend

to build on the original perceptions. If, however, the Area of Concentration was originally perceived in terms of its Components, this process will call for new holistic insights. The individual approach to defining the Area of Concentration, identifying Components, and reintegrating the Area of Concentration as a whole, will derive primarily from the student's personal style of learning.[3]

Figure 5. MANIFESTATION OF THE AREA OF CONCENTRATION.



[3]See Foray #5, Implications of the 'Program Quadrants'.

LEARNING RESOURCES (Axis V)

In principle, the opportunities for learning are infinite. In practice, each of us is exposed to a finite array of such opportunities, and the scope of this array is further constrained if purposive learning is distinguished from incidental or unintentional learning. While unintentional learning is of utmost importance for the individual student, the institutional framework of the MES degree program is based on purposive learning. Incidental and unintentional learning, although to be encouraged and celebrated, are serendipitous.

In FES, the settings and activities of purposive learning are institutionalized in 'courses'. Everything that the student does for acknowledged academic credit toward the MES degree is done in the context of a course. The convention of courses offers substantial opportunities for learning -- perhaps more substantial than may generally be appreciated. The challenge for engaging in idiosyncratic and unusual learning activities, as part of the formal degree program, is to formulate such activities in comprehensible and acceptable terms of courses. The course structure of the Faculty is intended to provide opportunities for such initiatives, in a variety of ways.

Courses in the Faculty of Environmental Studies

Courses fall into two basic categories: (1) 'group' courses where two or more students are associated with one or more faculty members; and (2) 'individual activity' courses where one student is associated with one or more faculty members.[4] Within each of these categories, the nature of a course may be characterized as primarily didactic or primarily interactive,

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[4]Necessary but not sufficient conditions for a course are the presence of a faculty member, the presence of a student, and a setting for their interaction (the Aristotelian an' a log) -- but note that presence does not necessarily mean physical proximity. Additionally, for the activity to be a course, the arrangements must have institutional sanction.

or as a combination of the two, resulting partly from the purpose of the course (see below) and partly on the personalities of the faculty members and students involved.[5]

In FES, courses are further distinguished by their format. Group courses include: lecture courses, seminar courses and workshop courses. Individual activity courses include: directed reading courses, individual directed study courses, field experience courses, independent work courses.

The format labels imply differences to be expected in the style of courses. Lecture courses are likely to be more didactic than seminar courses. Workshop courses are likely to be highly participatory. Seminar courses will focus on the exchange of ideas; workshop courses will focus on group problem-solving (simulated or real). The primary influence in independent work courses is likely to be the student; in individual directed study courses the faculty member is likely to have a prominent role. Individual directed study and independent work may or may not reflect real-world situations; field experience courses will, by definition, rely on real-world settings and issues.

Courses will also differ from each other in response to the prime purpose of the course; and different purposes will be pursued within any given course. Such differences derive not only from the purposes of the course as perceived by the Faculty, but also from the purposes perceived to be relevant by the students in the course, individually and as a group.

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[5]Faculty members associated with courses are normally labeled as 'course instructor' or 'course director'. Such labels may not appear to reflect accurately the role of faculty members if they consider themselves to be learners as much as the students involved in the course. It may or may not be that the faculty member knows more about the subject of the course than does the student — much rests on the individual interpretation of knowledge and learning. In any event, because of the institutional context of a course, the role of the faculty member differs fundamentally from that of the student. For discussion of the role of personality in learning see Foray #5, Implications of the 'Program Quadrants'.

The purposes for courses include: (1) command of subject matter; (2) comprehension of process; (3) appreciation of context; (4) exploration of method; (5) acquisition of skills. A given course may have as its institutional purpose one, or some, or all of these purposes; a given student in a given course may have in mind one, or some, or all of these purposes, and not necessarily the same ones that the Faculty identifies.

The purposes of courses are further influenced by the different phases of the MES program.* Courses are identified by number in general reference to 'level', but within a given course at any level, students may be pursuing purposes in relation to different phases in the individual programs. Thus, for the individual Plan of Study, each course needs to be assessed by the student for the individual purposes that it might serve.

Courses that are offered each academic year, over a period of years, are known as 'continuing' courses. In addition, 'developmental' group courses are offered in response to perceived changes in interests and needs of both students and faculty members. If such changes prove to be part of a larger trend in interest and concern, developmental courses may become continuing courses, and continuing courses may be dropped from the roster. If the needs prove to be of relatively short duration, developmental courses will not evolve into continuing courses. The lead time required to put a continuing course into place is approximately three years, and to put a developmental course into place, six months to a year. But immediate pressures for new course activities can be met each term within the framework of 'special topics' continuing courses.

The structure of course offerings in FES is summarized as follows:

Level I	ES 5101	Approaches to Environmental Studies
	ES 51xx	Lecture/seminar courses - continuing
	ES 52xx	Lecture/seminar courses - developmental

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*The phases of the MES program are discussed later in this foray. The phases -- MES I, MES II, MES III -- are sometimes referred to as 'levels', but there is not a direct coincidence between the 'levels' of course offerings and the 'levels' (phases) of the program.

	ES 53xx	Workshop courses - continuing
	ES 54xx	Workshop courses - developmental
	ES 5599	Readings in Environmental Studies
	ES 5699	Field Experience
Level II	ES 6101	Special Topics in Environmental Studies
	ES 61xx	Lecture/seminar courses - continuing
	ES 62xx	Lecture/seminar courses - developmental
	ES 63xx	Workshop courses - continuing
	ES 64xx	Workshop courses - developmental
	ES 6599	Individual Directed Study
	ES 6699	Field Experience
Level III	ES 7101	Special Topics in Environmental Studies
	ES 71xx	Lecture/seminar courses - continuing
	ES 72xx	Lecture/Seminar courses - developmental
	ES 73xx	Workshop courses - continuing
	ES 74xx	Workshop courses - developmental
	ES 7599	Individual Directed Study
	ES 7699	Field Experience
	ES 7799	Major Project Independent Work
	ES 7899	Major Paper Independent Work
	ES 7999	MES Thesis Research

It is obvious that the student is able to condition the nature of the individual program of study by choosing amongst courses. It is perhaps less obvious that, as a participant in a given course, the student has a substantial impact on the nature of the course. It may be even less apparent that students have a significant role in the development and evolution of the array of courses offered by the Faculty.

With appropriate input at the outset of the course, students enrolled in a lecture course can individually and collectively influence the nature and direction of the course, although perhaps not to the same extent as in a seminar course. Workshop courses, focused on group problem-solving, are even more responsive to conditioning by the students; and special topics courses are explicitly intended to respond to the input of students from the design stage. The initiation and introduction of developmental courses is commonly influenced by student involvement. Lastly, the individual student explicitly has the primary role in determining the purpose, approach, content, and results of individual activity courses.

Within the framework of the overall course structure, the requirements of each course in a given term are established by the Course Director and published at the beginning of the term, following the negotiation activities that may be relevant for the particular course.

In keeping with the view that the essential purpose of courses is to provide personal learning experiences, the course grading system of the Faculty includes only two evaluative grades to be reported by the Course Director and recorded on the Student History: Pass (P) and Unsatisfactory (U).[7] For each course taken by the student, the symbolic grade is accompanied by a confidential written evaluation, by the course instructors, of the progress and performance of the student in the course. For some courses, there will also be self-evaluations prepared by each student in the course, and perhaps peer evaluations prepared by the students.

Course Opportunities Outside the Faculty

In the nature of the FES curriculum approach, courses offered by the Faculty cannot, by themselves, fully satisfy the widespread interests of the students. Moreover, it is intended that the array of courses offered by the Faculty should avoid unnecessary duplication of courses available outside the Faculty, following the principle that, to the degree possible, the post-secondary educational resources in the province ought to be available as an integrated whole and should certainly be so within the university.

Students are therefore encouraged to seek out and engage in appropriate courses outside the Faculty, as integrated experiences in the individual degree program. Indeed, in some instances, it may prove desirable to spend an entire term at another university as part of the MES degree program. Not surprisingly, there are institutional constraints involved in taking

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[7]Other symbols may appear on the Student History, as follows:
S - satisfactory progress in a two-term course;
I - requirements of the course not yet completed by the student;
NR - grade report not yet received from the Course Director.

courses outside the Faculty. Also, not unexpectedly, these constraints increase the further out from the Faculty one gets.

Within York University, some courses are 'cross-listed' with other graduate programs, and thereby these courses are Faculty courses. Other graduate courses will have limits on enrollment as determined by the graduate programs offering the course, within general conditions set by the Faculty of Graduate Studies. Advanced undergraduate courses may be taken for academic credit, representing a particularly valuable learning resource in subject areas in which the student has had but little previous exposure.

Within Ontario, a student may take a limited number of graduate courses as a visiting student at another university, without paying additional tuition fees. Again, the unit offering the course will have conditions and limitations on enrollment for students from outside the unit. It is possible to take undergraduate courses at other universities and community colleges, but special arrangements must be negotiated, particular to the individual Plan of Study.

For the taking of courses outside Ontario bearing formal credit toward the MES degree, the conditions vary considerably. At the least, the student should expect to pay additional tuition fees to the host university.

In all cases for enrolling in courses outside the Faculty, there are extra requirements for ensuring that the proposed experience is valid and for recording the arrangements. Viewed by themselves, these requirements may seem overly bureaucratic; but viewed from the perspective of enlarging the scope of learning resources, they become the bureaucratic key to opening up otherwise unavailable learning opportunities.

Other Learning Resources

Beyond the institutionalized setting of courses, there are other situations that are available to be tapped to support the processes of learning, both within the Faculty and elsewhere.

The advising process is seen by the Faculty as an integral and significant element of the individual program of study. During the first term of study, each incoming student is assigned a faculty advisor on an interim basis, to assist in the orientation of the student in the program and in the preparation of the initial Plan of Study.* At the time of approval of the first Plan of Study, two Faculty Advisors -- a 'primary' advisor and a 'secondary' advisor -- are assigned to the student, selected in the light of the student's substantive interests and approach to the program as reflected in the Plan of study and in the nominations made by the student. The Faculty Advisors are responsible for providing continuing advice and guidance to the student throughout the program, in relation both to the processes of the program and to the substantive concerns of the student. The advice and guidance will be conditioned in two ways: by the perceptions of the Faculty Advisors as to the requirements of the program and the needs of the student, and by the perceptions of the student as to the role of the faculty and the nature of self-directed learning. Beyond the transfer of information, the essential significance of the advising relationship, as a learning opportunity, lies in the initiatives taken by the *student* in determining the advising context and in stimulating the relationship.

General Examinations, as more formalized settings for obtaining advice and guidance, also represent signficant learning opportunities. General Examinations, conducted by the student's Faculty Advisors, must occur when the initial Plan of Study is considered for approval and whenever the Plan of Study is revised, and may occur whenever the student or the Faculty Advisors consider that one is needed or would be useful. As pointed out in Foray #1, the word 'examine' has two significantly different meanings: "to inspect or scrutinize carefully . . . to inquire into or investigate" and "to test the knowledge, reactions, or qualifications of (a pupil, candidate, etc.) . . . to subject to legal inquisition." [Random House]. Thus, General Examinations take on different characteristics, depending upon the circumstances.

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*For a discussion of the 'first' Plan of Study, see Foray #1, Bond-Aid for the Incoming Student.

In some situations, following the second meaning of the word, the examination will be convened to make formal judgements, for the record, on the validity of the individual program and on the progress of the student in fulfilling the program. In other situations, following the first meaning of the word, the examination will be convened to pursue and validate less formal understandings concerning the evolution and activities of the individual program of study, not calling for formal institutional adjudication. In all cases, the opportunity exists to benefit from the examination as a learning experience -- for faculty members as well as the student.

Most graduate students need some financial assistance in the pursuit of their studies, and many are the beneficiaries of Graduate Assistantships or Teaching Assistantships. The potential of these 'job' situations as learning experiences is readily apparent. Indeed, in some instances, the motivation for seeking out the assistantship in the first place will be for its potential as a learning context, in some cases even as a 'course' in the individual Plan of Study. In addition to such assistantships, research programs and other projects being carried out by faculty members often provide opportunities for the engagement of students, either as paid assistants or as unpaid participants, with similar opportunities to develop learning contexts relevant to the individual program of study.

The 'other' real world is an abundant source of learning opportunities, limited only by imagination and institutional access. For the purposes of the MES degree program, beyond the intrinsic value of such experiences, they can often be designed and developed in such a way as to fit into the structure of courses and thereby carry with them formal academic credit.

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There are neither required courses nor a prescribed syllabus of study for the MES degree. But the individual Plan of Study sets forth the learning activities (courses) in which the student will engage, and this statement becomes the 'required' syllabus of study for that particular student. The courses 'taken' by the student constitute the essential building blocks of

the individual program, and the information about these course activities is an essential aspect of the individual Plan of Study. The recording of this information is a necessary element in the documentation of the program. Term by term, the student's course registration materials become an integral extension of the individual Plan of Study.

Given the individualized nature of the purpose and implementation of course activities -- no less, if not as obviously, for 'group' courses than for individual activity courses -- there are substantial institutional demands for the recording of information for registration in courses each term, probably more than the student has confronted in other educational settings. The irritations generated by these demands are arguably a small cost to be endured for the enhanced capacity of the educational system to respond to individual needs and interests -- besides, with a little ingenuity, the registration process itself can be turned into a learning opportunity (if only for its instrinsic worth and not for formal academic credit).

LEARNING STRATEGY (Axis VI)

There seems to be no dearth of buzz-words (itself a buzz-word) signalling 'the' way to approach the world and, by implication at least, learning: competitive winning; search for excellence; enjoy stress; world-class. . . .

But -- in the anthropic context, competition becomes destructively interpersonal and, in the natural context, against nature itself; the hunt for excellence becomes denigration of best effort that does not happen to conform to an arbitrary criterion; mental stress may well cause intellectual hernia; world-class becomes a dubious distinction in the light of what we have done to Earth. And yet -- competition against ignorance is beneficial; tension is inherent in all structure and so is compression, and one looks for harmonious relationships; there is indeed only one Earth and hence a single world-class, which is all classes. . . .

The word 'university' originates in Latin -- whole, totality, universe [Collins] -- and one meaning is given as "the whole number or aggregate of creatures, persons, things, etc." [Oxford]. Taking this as a clue, perhaps the idea of the university as a place for cooperative learning is not farfetched. The FES curriculum approach is intended to provide a support framework for finding the way toward the MES degree; ultimately, students must find their own strategic way to learning.

There are many ways to 'enter' the Faculty Model and many ways of using it. Perhaps you have reached this page in the document by starting with the PreAmble and working your way through the Forays in sequence; or perhaps you have started with this page; or perhaps you have not yet reached this page, coming or going. It is not expected that every student will approach and understand the Model in the same way, and it is by no means necessary that each student interact with every way of understanding and using the Model. It is intended that students should have idiosyncratic experiences with the Model and, in making the Model their own, make their own models.

'Levels' in the MES Degree Program

Tactics for the individual MES degree program will develop and evolve within the three 'phases' -- MES I, MES II, MES III. These are somewhat arbitrary labels for rather different kinds of learning situations confronted by every student in the process of 'advancing' through the program. For some students two (or even three) of the phases may seem to merge into one, and for others there may seem to be many more than three phases, and for still others the characterization of three phases may seem to be about right. Different perspectives are to be expected and nurtured -- to be reflected in the individual Plan of Study.

The phase of MES I has three significant functions. First, it is the introspective process of setting forth objectives and determining the essential approach for the program. Second, it involves getting acquainted with the relevant learning resources available, in York University and elsewhere. Third, it is for consolidating the basic knowledge needed to pursue the more advanced exploration of graduate work in the defined Area of Concentration, which may include some 'make-up' work to bring the level of competence up to that required for such exploration.

Institutionally, it is expected that the student will have the 'first' Plan of Study in place and be in a position to move forward with the essential work of getting command of the Area of Concentration by the end of the first term of the program. But MES I can be a strange and difficult experience for those students who have not previously had much exposure to open self-determination in education, and for some students the process of MES I may take longer. Moreover, the student may be embarking on study in a relatively new area of exploration, in which case the 'make-up' aspect of MES I may take longer than one term. Nevertheless, students are to be encouraged to accomplish this phase of the program in as short a time as reasonable for the individual circumstances. Even so, if the period of MES I does extend beyond the first term, the initial Plan of Study ought to be in place by the end of the first term.

In the words of the Faculty Regulations: "To advance to MES II the student is expected to be able to: (i) state clearly an Area of Concentration and its components; (ii) identify main currents of thought and practice in the field (taking account of the quadrant orientation selected) and major issues in the field; (iii) define the knowledge and skills needed to achieve substantive command in the Area of Concentration in MES II; and (iv) for each component, set out learning objectives for acquiring the required knowledge and skills."*

Figure 6. MES I.

Animal Crackers
WHEN I WAS A KID, I THOUGHT I HAD ALL THE ANSWERS-
I KNEW WHO I WAS AND I KNEW WHERE I WANTED TO GO!
SO WHAT HAPPENED?
ONE DAY MY TAIL DROPPED OFF!

In providing the setting for the individual student to acquire 'substantive command' of the Area of Concentration, the MES II phase varies in length and character even more than MES I. Key variables that will determine for the individual student the dimensions of the MES II phase include: the particular way that the Area of Concentration is defined; the extent to which the Area of Concentration and the personal field of concerns coincide; the coverage of the Components of the Area of Concentration and the depth of penetration being pursued; the array of skills to be acquired. During the MES II phase it is common that the student will want to revise the Plan of Study one or more times. In culmination of the MES II phase and as the basis for 'advancing' into MES III, it is obligatory that the Plan of Study be revised to constitute the 'last' Plan of Study, setting forth in detail the prospects for the final phase of the program.

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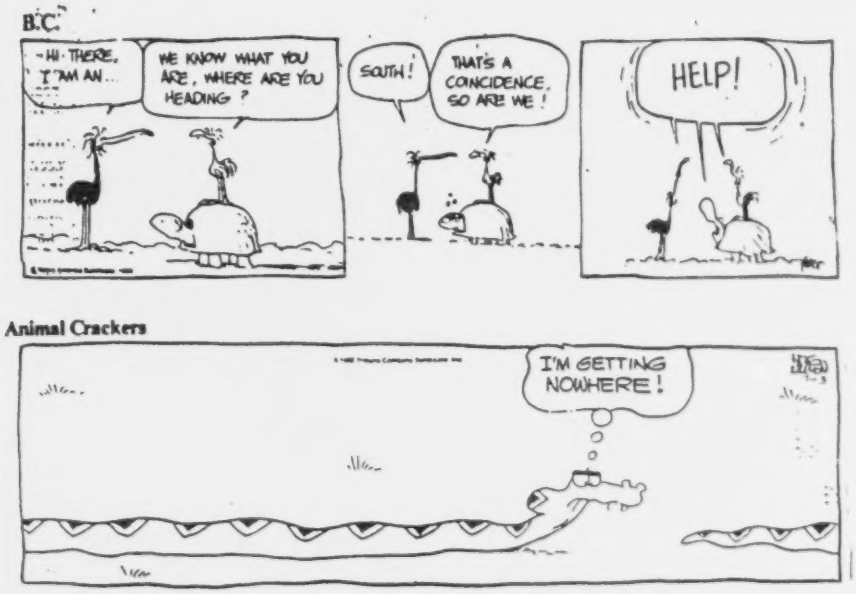
*FES Regulation 7.2(b).

Again, in the language of the Faculty Regulations: "To advance to MES III the student is expected to be able to: (i) demonstrate essential substantive command of the Area of Concentration and achievement of the learning objectives, as specified in the individual Plan of Study for MES II; (ii) have a specific understanding of the main currents of thought and practice in the field (taking account of the quadrant orientation selected), the major issues in the field, and the main approach to them; and (iii) set out an acceptable proposal for the MES III level of the program, including a further set of learning objectives addressing the Area of Concentration as a whole and synthesis of its components."[10]

Figure 7. MES II.



In the MES III phase of the program, most (but not all) students are likely to want to undertake a significant activity that in itself will constitute the integration of the Area of Concentration and the synthesis of knowledge that mark 'mastery' in Environmental Studies. As set out in the course

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[10]FES Regulation 7.3(b).

framework (discussed earlier in this Foray), the obvious vehicles for such an endeavour include Major Project, Major Paper, and MES Thesis. But the student may wish to pursue integration and synthesis in some other way, as set down in the Plan of Study. Whatever form the activities of MES III may take for the individual student, the integration and synthesis must be demonstrated in the oral Final Examination -- the last institutional requirement of the individual program of study.[11]

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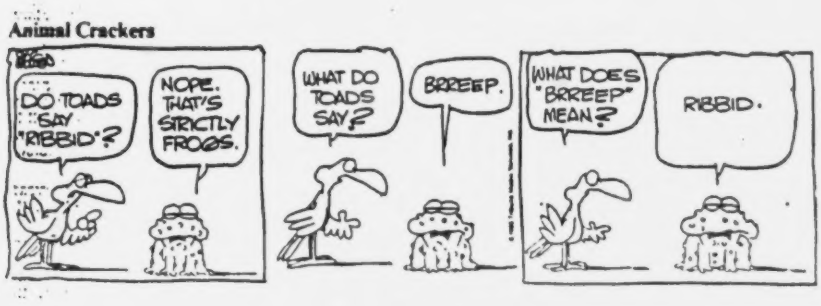
[11]The three phases of the MES program may be likened to the middle three of William Shakespeare's 'seven ages' set forth in *As You Like It*:

> All the world's a stage
> and all the men and women merely players:
> they have their exits and their entrances;
> and one man in his time plays many parts,
> his acts being seven ages. At first the infant,
> mewling and puking in the nurse's arms;
> then the whining school-boy, with his satchel
> and shining morning face, creeping like snail
> unwillingly to school. And then the lover,
> sighing like furnace, with a woeful ballad
> made to his mistress' eyebrow. Then a soldier,
> full of strange oaths, and bearded like the pard,
> jealous in honour, sudden, and quick in quarrel,
> seeking the bubble reputation
> even in the cannon's mouth. And then the justice
> in fair round belly with good capon lin'd,
> with eyes severe and beard of formal cut,
> full of wise saws and modern instances;
> and so he plays his part. The sixth age shifts
> into the lean and slipper'd pantaloon,
> with spectacles on nose, and pouch on side;
> his youthful hose, well-sav'd, a world too wide
> for his shrunk shank; and his big manly voice,
> turning again toward childish treble, pipes
> and whistles in his sound. Last scene of all,
> that ends this strange eventful history,
> is second childishness, and mere oblivion, --
> sans teeth, sans eyes, sans taste, sans everything.

But if that imagery is too tart for the taste, perhaps the gastronomical metaphor of a three-course meal is more pleasing -- MES I is the hors d'oeuvre, MES II is the entree, and MES III is dessert (although not always a 'sweet'). Whether the meal is gourmet or gourmand depends primarily on the predilection of the student, as reflected in the learning objectives for the program.

Superficially, the differences among Major Project, Major Paper, and MES Thesis may not be readily apparent, but they are significant. The rubric of MES Thesis is reserved for activities that fall within the traditional realm of masters theses. That is, whatever the benefit of learning derived by the student in the process, the thesis must represent a defensible contribution to the development or the use of knowledge. Major Papers and Major Projects may take on a wide variety of forms including those for which there are no precedents. In a Major Project, whatever the form, the prime signifance for learning is in the doing, albeit that the output may well be of considerable import. In a Major Paper, the form of output is indicated by the label and the prime significance for learning may be either in the doing or in the output, or in both. It is also important to note that the MES Thesis, the Major Paper or the Major Project may indeed be a vehicle for the student to integrate and synthesize the Area of Concentration, but in other cases it may serve a more specific purpose relating to a component or a skill and not necessarily be the vehicle for synthesis.[12] All of which reinforces the importance of clarity in the last Plan of Study.

Figure 8. MES III.



[12]The perceptions that are held by the student and the faculty advisors of these distinctions in the purposes and roles of the activity will affect critically the nature of the final phase of the individual program. The Faculty Regulations provide that the statement in the Plan of Study of the requirements for the activity ". . . may include criteria for the consideration of the output in the Final Examination and, upon acceptance by the Committee of Instruction, these criteria shall be binding upon the Final Examination Committee and the student." [FES Regulations 12.4 and 13.4]

The Principle of 'Course-Units'

Each individual program of study has a different story to tell -- a unique history. This results in ambiguities and uncertainties both for the student and for the university. The individual program is, of course, recorded in the Plan of Study. But beyond the idiosyncratic document of the Plan of Study, a more succinct 'student history' is needed to record the progress of the student, using nomenclatures that are more generally comprehensible within the constraints of academic convention. Therefore, certain 'norms' are established by the Faculty not only for reference to where the individual program rests in the system, but also to assist the student in time-budgeting within the program.

Starting with the assumption that full-time graduate study occupies about fifty hours per week of the time of the 'normal' student, it is judged that it may reasonably be expected to take approximately eight terms, or two and two-thirds years,[13] of full-time study to complete the requirements for the MES degree (in the 'normal' case), and a program including part-time study may be expected to extend over a proportionately longer time. But the actual length of the program, in the specific case, is determined for each student in the framework of the individual Plan of Study, and in each case the length of program will be measured and tested against the 'norm'.

In a given term, the number of separate learning activities (courses) in which the student will engage will depend on a number of factors, including the phase of the program and the nature and demands of each of the particular activities. On pedagogical grounds, again as a 'norm', it is considered that the student should not engage in more than five separate and concurrent courses in any given term. Following from this, as an accounting device, full-time study in a given term is represented by the nomenclature of five 'course-units' -- anything less than five course-units represents part-time

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[13]The academic 'year' for FES consists of three four-month 'terms': September through December, January through April, May through August.

study. The actual number of courses (as compared to course-units) for full-time study in a given term will range from one to five. Full-time study consisting of one course will be represented by five course-units; two separate courses will carry a combination of two course-units and three course-units; three courses will divide into two courses of two course-units each and one course of one course-unit (or one course of three course-units and two courses of one course-unit each); four courses would consist of one course for two course-units and three courses for one course-unit each; five separate courses would carry one course-unit each. Such information for each student is readily recorded, term by term.

One term of full-time study being represented by five course-units, and the 'normal' length of the MES program being eight terms of full-time study, it follows that the program as a whole calls for forty course-units, in the 'normal' case. But, as already indicated, the actual length of the program is determined on the basis of the individual Plan of Study. Hence, if the Plan of Study calls for more than forty course-units, the 'extra' course-units are simply added to the individual record as the activities are completed. If, however, the Plan of Study calls for less than the 'norm' of forty course-units the accounting system needs to be balanced by recording, as 'residual credit', the number of course-units needed to bring the total up to the 'norm' of forty. This 'balancing' of course-units by means of residual credit is usually done at the time the student 'advances' from MES II to MES III, on the basis of the 'last' Plan of Study which sets forth precisely the actual demands for the final phase of the individual program and thus determines the time that will be needed to complete the program.

It should be clear that the MES degree is not obtained by accumulating 'credits'. The degree is awarded for the demonstration of substantive accomplishment in the fulfillment of the Plan of Study. In support of that process, the device of course-units is intended to provide assistance to the student in time-budgeting for the program, and to provide the accounting mechanism for recording the course activities of the individual program, for the benefit of those persons (including the student) who need access to that information.

Evolution of the Plan of Study

If the 'first' Plan of Study proves to be a highly sophisticated and polished document that explores all of the ramifications of the individual Plan of Study, well and good. But students should not feel the least bit embarrassed if the initial Plan of Study is highly tentative and does not penetrate very deeply in many aspects of the program -- that is to be expected, unless the student already has a highly developed sense of introspection and experience with self-determination in education.[14] The prime purpose of the first Plan of Study is to initiate purposive learning in the setting of the Faculty and to get the individual program of study under way. The very activities and learning in the program will generate revisions that will clarify and develop the elements of the Plan of Study. But, as the basis for engaging in program activities, it is important to keep the Plan of Study current, reflecting personal learning and understanding as they happen.

If 'advancement' to MES II does not occur at the time the initial Plan of Study is approved, the student will need to revise the Plan of Study for that advancement when it does occur. During the period of MES II, the student will want to revise the Plan of Study several times as the nature of the demands for substantive command of the Area of Concentration become more clear. For advancement to MES III, a final revision of the Plan of Study is obligatory, to set forth, in detail, the requirements of the final phase of the program. This 'last' Plan of Study will consolidate the learning of MES II and provide a 'manifesto' of what that student means by synthesis and integration and how the student intends to accomplish them.

Each successive revision of the Plan of Study should have its own integrity which will evolve from that of the preceding Plan of Study. As the Plan of Study develops, the definition of the Area of Concentration should become more refined, and the way that the Area of Concentration 'belongs' to the

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[14]For discussion of the initial Plan of Study, see Foray #1, Bond-Aid for the Incoming Student.

student should become increasingly clear; the explication of learning objectives should become increasingly pointed and relevant to the components of the Area of Concentration and to the Area of Concentration as a whole in the larger personal Field of concerns; and the way that the learning activities serve the learning objectives should be increasingly obvious.[15]

Two aspects of the Plan of Study are particularly significant indicators of the development of the individual program: definition of the Area of Concentration and perception of the Program Quadrant. A substantial change in the Area of Concentration -- the subject matter of study -- will bring with it changes in learning objectives and in learning activities and, consequently, an adjustment in the requirements of the program (including its length). A substantial change in perception of the Program Quadrant -- the contextual approach to the program -- will bring with it similar changes. Students are well advised to focus attention on these aspects early in the process and to come to grips with the implications for the individual situation, if only to avoid unduly prolonging the program.

At the end of MES III, and in support of the Final Examination, the student will want to view the program of study in retrospect and may wish to set forth a summary statement[16] that conveys the message, "This is my Area of Concentration as I have mastered it" -- somewhat akin to saying, "I know it's true, I made it up myself." And convincing the members of the examining committee that it is indeed true, is the essence of the Final Examination.

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[15]Note that to be able to tell if and when a learning objective has been met, the objective should contain three elements: what is to be learned about, the extent and depth of learning that is intended, and what the student expects to be able to do with the learning.

[16]Such a submission for the Final Examination is commonly (albeit unofficially) referred to as a 'synthesis paper' -- not to be confused with a Major Paper, Major Project or Thesis.

Figure 9. A 'FINAL' EXAMINATION.

'Mastery' in Environmental Studies

The Faculty has not published clear-cut criteria and standards for measuring 'mastery' in Environmental Studies. Moreover, in the larger academic setting, there does not appear to be consensus on what 'mastery' means for the purpose of graduate degree programs at the masters level.

For the MES program, the primary clue to the particular meaning of 'mastery' lies in the guideline for the Final Examination as contained in the Faculty Regulations: "The Final Examination shall establish, to the satisfaction of the examining committee, that the Plan of Study has been fulfilled by the student in the following ways: (a) the Area of Concentration has been successfully defined and its substance mastered; and (b) the various components of the Area of Concentration have been integrated; and (c) the nature of the student's orientation has been defined within the context of the Program Quadrant; and (d) each learning objective has been satisfied."[17] Beyond this, the student and the examining committee are on their own.

Nevertheless, experience over the years suggests that, by the time the Final Examination is reached, students seem to have a fair notion of what *they*

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[17]FES Regulation 16.3

expect of themselves for 'mastery' of their Areas of Concentration, and that, after all is said and done, is the underlying objective of the MES program.[18]

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[18]In one of the iterations of ES 7102, Synthesis in Environmental Studies, the seminar members, all pursuing different Areas of Concentration and all in the final phase of their programs, put forward the following as reasonably to be expected of the student in the Final Examination:

Knowledge -
- o In-depth knowledge of the Area of Concentration.
- o Knowledge of theory and issues underlying the Area of Concentration.
- o Familiarity with surrounding areas of knowledge.
- o Understanding of the limits of the field.
- o Knowledge of current environmental issues.

Skills/competencies -
- o Prepared, willing and able to defend ideas.
- o Ability to communicate orally and in writing.
- o Understanding of terms used (vocabulary).
- o Critical thinking.
- o Analytical skills.

Synthesis -
- o Independent thought.
- o Self-awareness and identification.
- o Clear stand and line of thought.
- o Ability to see various points of view.
- o Integration of interdisciplinary ideas.
- o Integration of theory and practice.
- o A view on 'What is Environment?'

In general terms, these expectations can be interpreted in the overlapping frameworks of etiology, epistemology, and ethic; if etiology is "the science of causes", and epistemology is "the theory or science of the method or grounds of knowledge", and ethic is "the science of human duty in its widest extent. . ." [*Oxford Universal Dictionary*, 1955]. Hence the obligation to consider consequences and, arising out of the awareness of consequences, the ecological propriety of human behaviour.

From a slightly different perspective, these expectations can be seen to relate to being literate, numerate and ecolate -- as characterized by Garrett Hardin: "Literacy: What are the words? Numeracy: What are the numbers? Ecolacy: And then what?" [*Filters Against Folly*, 1985.]

York University
Faculty of Environmental Studies

ESSAYS INTO ENVIRONMENTAL STUDIES

Being Interpretations and Amplifications
of the

FES CURRICULUM MODEL

FESKIT

Foray 7

APPROACHES IN ENVIRONMENTAL STUDY

Toward a Selected Bibliography

1987-4

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TOWARD A SELECTED BIBLIOGRAPHY

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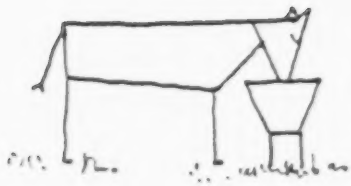

The horse is Rocinante; the delineations are adapted from Zuloaga, 'The Victim of the Fête' [1910]